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FEBRUARY 13TH, 1877.

JOHN EVANS, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same:—

FOR THE LIBRARY.

- From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XX, No. 88.
- From E. W. BRABROOK, Esq., F.S.A.—A Pamphlet on Friendly Societies and similar Institutions.
- From the SOCIETY.—Proceedings of the Royal Society. Vol. XXV, No. 176.
- From the SOCIETY.—Transactions and Proceedings of the Royal Society of Victoria. Vol. XII.
- From the SOCIETY.—Proceedings of the Royal Geographical Society. Vol. XXI, No. 1.
- From the SOCIETY OF ANTIQUARIES OF LONDON.—Archæologia: or Miscellaneous Tracts relating to Antiquity. Vol. XLIV, Part II.
- From J. JEREMIAH, Esq. Jun.—Papers relating to the Urban Club.
- From the SOCIETY.—Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. IX, Part I.
- From Prof. F. V. HAYDEN, Hon. M.A.I.—Bulletin of the United States Geological and Geographical Survey of the Territories. Vol. II, No. 1; Photographic Portraits of the Indians of U.S. North America, representing 70 of the Principal Tribes.
- From Captain HAROLD DILLON, F.S.A.—General Returns of the  
VOL. VII.

British Army for the year 1873; Report on Military Prisons for 1875, by Lieut.-Col. DuCane, C.B., R.E.

From the ASSOCIATION.—Proceedings of the American Association for the Advancement of Science. Vol. XXIV, 1875.

From the SOCIETY.—Proceedings of the Asiatic Society of Bengal. No. 8, 1876; Journal of ditto. Vol. XLV, Part I, No. 2, and Part II, No. 3.

From the EDITOR.—*Revue Scientifique*. Nos. 31—33, 1877.

From the EDITOR.—*Nature* to date.

A special vote of thanks was passed to Prof. HAYDEN for his present of an album (which was exhibited at the meeting) containing photographs of the Indians of North America, representing 70 of the principal tribes.

Miss A. W. BUCKLAND read the following paper on Primitive Agriculture:—

#### PRIMITIVE AGRICULTURE. By A. W. BUCKLAND, M.A.I.

IT has been justly remarked by Mr. Crawford that "no people ever attained a tolerable degree of civilization who did not cultivate one or other of the higher cereals," and yet, strange to say, the subject of Primitive Agriculture is enveloped in mystery. We know, indeed, that the cultivation of bread-stuffs dates from a most venerable antiquity; that, as the author before quoted says, "The architectural monuments and the letters of Egypt, of ancient Greece, and of Italy, of Assyria, of Northern India, and of Northern China, were all produced by consumers of wheat. The monuments and letters of Southern India, of the Hindu-Chinese countries, of Southern China, of Java, and of Sumatra were the products of a rice-cultivating and rice-consuming people. The architectural monuments of Mexico and Peru, and we have no doubt also of Palenqué, were produced by the cultivators and consumers of maize."\* But, when we ask, as we very naturally do, to what people are we indebted for the origin of agriculture, and where is the native land of the cereals thus so early known, so widely spread, and so successfully cultivated in prehistoric times? we are met with vague and uncertain responses, even from the most accomplished of ethnologists and botanists.

Archæological records prove that man in his earliest condition was no cultivator of the soil, no keeper of herds and flocks, but a wild and savage hunter, flitting from place to place continually in pursuit of his prey, but, judging from the habits of modern savages, as tribes multiplied it must soon have been found inconvenient to allow the women and children to accompany the

\* "Plants in reference to Ethnology." "Trans. Eth. Soc." vol. v, p. 190.

men in all their hunting expeditions; these, therefore, were probably left encamped in some convenient spot, to await the return of the hunters from distant raids upon the wild denizens of the forests.

That agriculture originated with these watchers and waiters seems at least probable, for amongst them food must have been often scarce, and in time of famine strange diet becomes both necessary and acceptable, and fish, bird, and insect, must often have been supplemented by wild fruits and roots, and at last by the grasses, the seeds being eaten without preparation. But as savages and animals, both wild and domesticated, learn by experience what to eat and what to avoid, so experience must have taught these primitive peoples that the seeds of the various grasses which they found growing wild were not only good and sustaining food, but might be improved by being pounded and deprived of their husks, and by being either parched or mixed with water and baked or boiled; and doubtless they soon learnt by observation that these seeds, scattered over the land, would reproduce their kind, and furnish them with food for another season of scarcity. The almost universal employment of women exclusively in agricultural pursuits among the lower races, may perhaps, be adduced in confirmation of this conjectural origin of agriculture, which certainly could never have originated with nomadic tribes, because they could not have remained long enough in one spot to sow the seed and reap the harvest. It is evident that the discovery of this eminently useful art, would be a powerful aid to the formation of settled tribes, and eventually of civilized communities and powerful nations; because the necessity for a wandering life would thus by degrees be done away with; the long journeys in search of food would be gradually abandoned for the cultivation of the soil, and herds would be kept to supplement the uncertain products of the chase, rendered yet more uncertain by the multiplication of man in one spot, and the consequent withdrawal of wild animals to a safe distance from their enemies. Thus man would become more and more dependent upon agriculture and upon the rearing of tame cattle, and from a hunter would become a husbandman. Taking this to have been the origin of agriculture, it is of course possible, nay probable, that the cultivation of the soil may have originated in many unconnected countries, and at various times; but it is remarkable that many peoples, some living in fertile countries, have yet remained in total ignorance of this earliest of the arts to the present day; but then such tribes have either continued to be houseless, wandering savages, whose simple wants are supplied by natural products, or, like the Esquimaux, their climate has prevented any successful attempt at agriculture.

Then again, neither Australia, New Zealand, nor the numerous Pacific Islands would seem to possess any indigenous species of grain, although some of the wild barleys and oats are found in New Zealand, Easter Island, and the West Indies; and in Australia a grass abounds which they say is neither good for man nor beast, but which yet resembles so much in outward appearance some of our cultivated grasses, that one is tempted to believe that this also might be developed into corn, and even to wonder whether here, in this ancient land, we may not trace the origin of some of our cereals.\* It is, however, generally agreed that we must not look to the southern hemisphere for that development of agricultural skill resulting in the cultivation of the cereals; for throughout all these scattered lands, agriculture where it does exist, consists in the cultivation of roots and trees indigenous to those lands. The growth of the cereals requiring greater skill, represents also a higher stage of development in the races who, from wild originals, brought them into a state fit for the nourishment of man. That all our cereals sprang either spontaneously, or by cultivation from wild originals, cannot be doubted; but when we find that in the lake dwellings of Switzerland, belonging to the Stone Age, three kinds of wheat, two of barley, and two of millet were certainly known, we are forced to believe that the wild originals of wheat and barley must have merged into the cultivated, at an extremely early period in the history of our race, and that the art of agriculture must be of extreme antiquity.† This fact is, indeed, testified, not only by the knowledge of the art possessed by the lake dwellers, but by discoveries of corn with Egyptian mummies of vast antiquity, by traces which have been found, not only of corn, but of the furrows made for the cultivation of it, beneath bogs and peat mosses of great depth, and by the discovery of maize by Mr. Darwin on the coast of Peru, in a raised beach 85 feet above sea level, and in tombs belonging to a race long anterior to the Incas. But the countries producing the wild originals of our cultivated cereals, and therefore by inference the races also to whom we are indebted for their cultivation, remain unknown.

Mr. Crawford in pointing out the fact that the names for wheat and barley, vary in almost all languages, and that this variation in the names given to the cereals points to their having been independently cultivated in many different localities, says, that in Basque, the names for wheat, barley, and oats are purely

\* We find, indeed, that the seeds of this grass (*Panicum lavinode*) are used by the natives of the interior to make a sort of paste, which is described as sweet and palatable. See "Tropical Australia," Lieut.-Col. Sir T. L. Mitchell, p. 98.

† See Belt's "Naturalist in Nicaragua," and Rennie on "Peat Mosses."



Basque, while those for rye, rice, and maize are of Spanish origin. "The inference is," he says, "that the first-named plants were immemorably cultivated by the Basques, and the last only introduced into their country after the Roman conquest of Spain."\* The mention of *oats* among the earlier list would seem to be a confirmation of the theory of most archæologists of the present day, that the Basques are the remnant of that pre-Aryan race to whom we are indebted for the introduction of bronze, since we are told, that oats do not appear in the Swiss Lake villages before the age of bronze. Rice would seem to have originated in tropical Asia, and never to have found its way in any considerable quantity into Europe in primitive times, either as an article of commerce or of agriculture.† Even now it is very little cultivated, except in Asia where it forms the food of millions, and in tropical America where it has been introduced in modern times. It has been commonly accepted as an indisputable fact, that maize is indigenous to America, and was unknown to the Eastern hemisphere before the time of Columbus. Whilst, however, allowing in the absence of proof to the contrary, that America was the native land of this most useful cereal, I cannot think that the date of its introduction to the Old World has, as yet, been satisfactorily ascertained. Respecting this plant Mr. Crawford says, "Maize is an exclusive product of America, and was as unknown to the Old World before the time of Columbus as tobacco or the pine-apple. With a wider geographical range than any other of the cereals, it has invaded every country of the Old World from the equator to the 50th degree of latitude, and is now the bread of many millions of people whose forefathers lived in ignorance of its existence. It is extensively cultivated in the southern provinces of China, in Japan, and in the islands of the Malay and Philippine archipelagos. Speke and Grant found it the principal corn in parts of the interior of Africa, which the feet of white man had never trodden before their own; and in Italy and Spain it was a frequent crop within fifty years of the discovery of the New World. This wide and rapid extension, maize owed to its adaptation to diversities of soil and climate, its hardihood, with consequent facility of propagation, and its eminent fecundity."‡ Mr. Crawford elsewhere lays down, as a rule, that where native names are given to cereals, it is a proof that they are indigenous to those countries; but in applying this rule to maize, he says, "The name as known to European nations is taken directly

\* "Plants in reference to Ethnology." "Trans. Eth. Soc.," vol. v.

† See Observations as to the probability of its thriving in France, and the "Imperial Wheat" in Huc's "China"

‡ "Plants in reference to Ethnology." "Trans. Eth. Soc.," vol. v.

from the Spanish, and it is to be presumed that the conquerors of the New World borrowed it from one of the many languages of that continent. In some of the Oriental languages we have specific names for it, which seem entirely native, such as *bhutta* in Hindu, *jagung* in most of the languages of the Indian archipelago, *katsalva* in the Madagascar. This would lead to the belief that the plant was indigenous where such names are given to it; but the probability is, that they were taken from some native plant bearing a resemblance to maize. Thus in the two principal languages of Southern India, maize is named after the chief millet cultivated in the peninsula, the *cholu* or *ragi*, to which an epithet implying its foreign origin is added. The Turks give it the name of *boghdai misr*, or the wheat of Egypt, which is not more amiss than the names given by the French and English when they call it Indian and Turkey corn.\* It does not seem incredible that maize should have been cultivated in Italy and Spain within fifty years of its discovery; but why it should have been called from the first *Turkish* or Indian corn, requires explanation; neither can we understand how it found its way so quickly into China, Japan, Madagascar, the Malay Archipelago, and all parts of Africa (for it was also *found* in cultivation at the Cape at its first discovery, even as in the interior by Speke and Grant, and at Angola as recorded by Mr. Monteiro) before any intercourse had been established between those countries and Europe or America.

A gentleman from the gold fields of South Africa informs me, that the Kaffirs beyond the frontier, who will not permit a white man to enter their territory, from the superstitious belief that the destruction of their race would follow immediately in his footsteps, yet cultivate maize largely, and have done so from time immemorial. It may also be interesting to observe that the same people describe minutely gigantic ruins existing in their land, the origin of which they do not know, but which many colonists believe to represent the Ophir of Scripture, but which no European has yet been able to visit, so vigilant are the natives.

Columbus is said to have introduced maize into Spain in 1520, but it is a singular fact that the old black letter book, entitled "A Nieuwe Herball," translated by Henry Lyte, Esq., and published in London in 1578, gives a very full description of this plant, but without any reference whatever to its American origin. It is there said, "This grayne groweth in Turkie, wher as it is used in time of dearth." "They do now call this grayne *Fruementum Turcicum* and *Fruementum Asiaticum*; in French Blé de Turquie or Blé Sarazin; in High Douche, Turkie Korn;

\* "Plants in reference to Ethnology." "Trans. Eth. Soc.," vol. v.

in English, Turkish corn or Indian wheat." If we compare with this the following extract from Dr. Daubeny's "Lectures on Roman Husbandry" (1857), we shall perhaps come to the conclusion that the Turkish name for that which we call Turkish or Indian wheat, may not after all be so very far wrong. Dr. Daubeny says, "The names given to wheat by Pliny were *far adorum*, *halic astrum* and *zea*. Although in modern books on botany the name *zea* is applied to maize, it certainly could have no relation to that now well-known article of food. For there can be no sort of doubt that maize is indigenous in America, and was not known in Europe till after the discovery of the New World. It is thought, indeed, that it is a native of Paraguay, where a variety is found differing in some respects from the cultivated kind, but not so essentially, as to be regarded as a distinct species. Sir Wm. Hooker, however, relates a curious circumstance, namely, that some grains called mummy wheat, were sent him from Egypt, which proved to be maize, and maize of that variety which comes from Paraguay. It was reported to have been taken from a mummy, on as good authority perhaps as most of the specimens which have been brought over, a fact that ought to render us cautious in believing the reports of the Arabs in similar cases, for it seems next to certain, that some fraud must here have been practised, as a valuable plant like maize, if ever known in Egypt, could not fail to have become general, in a country so well suited for its cultivation. Nevertheless, it is certainly curious that it should have been, not the commonly cultivated variety, but the one indigenous in Paraguay, which was passed off among the contents of an Egyptian tomb." In a note it is explained that "Mons. Rifault, a French traveller, reports that he obtained these grains of maize himself from an Egyptian catacomb."\* In Chambers's Encyclopædia, we are told that although maize is supposed to have been unknown in the Eastern hemisphere before the time of Columbus, yet a representation of the plant is found in an ancient Chinese book in the Royal library in Paris, and some grains of it are reported to have been discovered in ancient houses in Athens. Indeed, I feel sure that if archaeologists will look with unprejudiced eyes, they will yet find representations of this plant among the sculptures of Egypt and Greece.

To the objection that had this corn been known to the ancient Egyptians it would have become generally cultivated, it may be answered, that supposing it to have been of foreign origin, the conservatism of the Egyptians would have prevented its speedy adoption, and a land which produced so abundantly

\* "Lectures on Roman Husbandry," by Chas. Daubeny, M.D., F.R.S., M.B.I.A., Professor of Botany, Oxford, 1857.

the superior grains, wheat and barley, would not be likely to resign them for that which "The Nieuwe Herball" says was in 1578 only cultivated in Turkey in time of famine, and of which it proceeds to say, "There is as yet no certain experience of the natural vertues of this corne. The bread that is made thereof is drie and harde, having very small fatnesse or moys-ture, wherefore men may easily judge that it nourisheth little and is evill of digestion." We can, however, readily understand that it would spread quickly, and be a great boon in those tropical lands unsuited for the production of wheat; but even now, after the experience of centuries, Europeans, except in Spain and Italy, cultivate this grain very sparingly, and rather as food for cattle than man. This question as to the knowledge of maize in the Eastern hemisphere prior to the time of Columbus, is most important in connection with the intercourse which many ethnologists believe can be proved to have existed between the Old World and the New, long ages before the birth of history. With regard to American agriculture, Sir John Lubbock says, "American agriculture was not imported from abroad. This is proved by the fact that the grains of the Old World were entirely absent, and that American agriculture was founded upon the maize, an American plant."\* But to this it may be replied that adventurers from the Old World, whether driven accidentally to the New, or finding themselves there in the course of a voyage of discovery, would not carry with them grain for the purposes of cultivation, but being conversant with the growth of corn, would seize upon that which they found ready to their hand as the basis of their agriculture. Even had they conveyed with them wheat, they would probably have consumed it, or have found it unsuited to the soil of the new country. American legends are unanimous in ascribing the introduction of agriculture to foreigners coming from the sea, who are minutely described as white bearded men, distinct in race from the aborigenes. Both Quetzalcoatl in Mexico, and Manco Capac in Peru, are distinctly venerated as instructors in the art of the cultivation of maize, and although attempts have been made to prove both these to have been sun myths, I believe the balance of probability is in favour of their being real personages, notwithstanding the myths which have since accumulated round them, and the truth of the legends relating to the cultivation of maize in America, appears to me to be confirmed by the description given by Sir John Lubbock of the early traces of American agriculture. After describing these traces as consisting of irregular corn-hills, he proceeds to say "But Mr. Lapham has found traces of an earlier and more

\* "Prehistoric Times," 2nd edition, p. 278.

systematic cultivation, in low parallel ridges, as if corn had been planted in drills; they average 4 ft. in width, twenty-five having been counted in the space of 100 feet, with a walk of about six inches between them; they are found in the richest soil in patches of different sizes, from twenty to one hundred or even three hundred acres; they are found in several other parts of the State of Wisconsin, and are called garden-beds. The garden-beds have long been replaced by the irregular corn-hills, yet according to Lapham the former are more modern than the mounds, over which they are sometimes carried." Hence Sir John Lubbock traces four long periods: 1st. That in which from an original barbarism the American tribes developed a knowledge of agriculture and a power of combination. 2nd. That in which for the first time mounds were erected and other great works undertaken. 3rd. The age of the garden-beds, which were probably not in use till the mounds had lost their sacred character, or they would not have been used for cultivation. 4th. The period in which man relapsed into partial barbarism, and the spots above-named relapsed into forest once more.\* Now it is evident from this extract, that three different agricultural systems have prevailed among the civilised races of America, the latest, that of the irregular corn-hills, belongs without doubt to a comparatively modern period, and to the cultivation of maize, which is still planted in small hillocks by the Americans, and by those who have learnt the cultivation of this grain through them; the second, that of the garden-beds, which though much older, yet dates only to a time when the cities of the great mound builders had already fallen into decay, or when the builders had been supplanted by a new race, and these garden beds probably bear witness to the cultivation of some other grain than maize, perhaps a millet, which was certainly cultivated by some American tribes, whilst of the third or oldest, that under which the mound-builders lived and executed their gigantic works, no traces remain, probably because the agriculture then practised did not include any of the cereals, but consisted solely of roots and plants, such as still constitute the food of the South Sea Islanders, and of the aborigenes of many other lands, the wilder and more barbarous tribes contenting themselves with such things as grow spontaneously, whilst the more advanced cultivate such plants as are by them most highly esteemed. The *manioc* or *Jatropha manioc*, says Mr. Crawford, formed the principal bread of the rude inhabitants of native America, who had but one of the cereals, and that one not universally known and cultivated. Similar plants, we are told, form the chief food of many African tribes, and there seems to

\* "Prehistoric Times," pp. 274—277.



be sufficient evidence to prove, that prior to the knowledge of the cereals, roots, prepared by pounding, maceration, and dessication, formed the universal food of the human race, and that the cereals were everywhere introduced by new and superior races, who had by some means acquired a knowledge of them in the land of their nativity. There is a singular passage in Herodotus, which tells us of a time when the Egyptians lived in this primæval state on roots and fruits. After enumerating a great many points in which the Egyptians differ from other nations, he writes, "Others feed on wheat and barley, but it is a very great disgrace for an Egyptian to make food of them, but they make bread from *spelt*, which some call *zea*."\* And later he says of those who live in the morasses, "But to obtain food more easily they have the following inventions: when the river is full, and has made the plains like a sea, great numbers of lilies, which the Egyptians call *lotus*, spring up in the water; these they gather and dry in the sun, then having pounded the middle of the *lotus* which resembles a poppy, they make bread of it and bake it. The root also of this *lotus* is fit for food, and is tolerably sweet, and is round and of the size of an apple. There are also other lilies, like roses, that grow in the river, the fruit of which is contained in a separate pod, that springs up from the root in form very like a wasp's nest, in this there are many berries fit to be eaten of the size of an olive stone, and they are eaten both fresh and dried. The *byblus*, which is an annual plant, when they have pulled it up in the fens, they cut off the top of it and put to some other uses, but the lower part that is left, to the length of a cubit, they eat and sell. Those who are anxious to eat the *byblus* dressed in the most delicate manner, stew it in a hot pan and then eat it." It is somewhat singular that not only do the Egyptians resemble the Chinese in many of those points in which Herodotus points out their difference from other men, but also in the food thus consumed presumably by the lower classes, for M. Huc says, "Water lilies, yellow, white, red and pink, are much cultivated, the seeds are eaten as nuts, and boiled in sugar and water; the root is always excellent and wholesome however cooked, whether pickled with salt and vinegar to eat with rice, or reduced to powder and boiled with milk or water it is very agreeable, or eaten raw like fruit."†

Thus we see that in the two countries noted above all others for the cultivation of the cereals, there are evident traces of a time when the aborigenes lived as savages do now upon roots. *Root-eater*, we are told, among the Malays is a term of contempt

\* "Herodotus," Book II, 92 and 36, Cary's edition.

† Huc's "Chinese Empire."

equivalent to *barbarian*, and doubtless it acquired this significance from the fact that the aborigines everywhere, either from old custom or from superstition, prefer the food of their forefathers. Thus we find even to the present day, the natives of Australia and the South Sea Islands, prefer their taro, yams, and manioc to the cereals, which, although now long familiar to them, are not extensively cultivated by them. Perhaps, the record of the sums expended in purchasing radishes, onions, and garlic for the builders of the Great Pyramid, and the absence of all mention of corn, may also be adduced as a proof of the truth of the statement of Herodotus, the *luxuries* above named being doubtless supplemented by the abundant lotus crop of the Nile. But then the question arises, What became of the vast quantity of corn grown in Egypt? It was, doubtless, partly consumed by the sacerdotal and military castes, much was stored, as we know, for seasons of scarcity, and much, perhaps, was exported in exchange for such articles of luxury as Egypt did not produce, until gradually but surely, the taste for bread became universal among them, even, as among ourselves, wheat has only gradually, and within the last century, entirely superseded the barley, rye, and oat bread familiar to our ancestors, and which is still eaten in Germany, Russia, and Scotland. It is a point especially worthy of note that races, however low they may be in the scale of humanity, have yet learnt to prepare native plants, many of them of a poisonous nature, and others of an acrid and unpleasant taste, by soaking them long in water, by pounding and drying them so as to extract the unwholesome matter, whilst retaining the starch, which they then make into a paste and either bake or boil, but chiefly the latter. Du Halde tells us, that the wheaten bread of the Chinese is chiefly prepared by boiling.\* Even our Saxon ancestors retained a memory of the arts of savage life in the food they prepared from acorns, by pounding and soaking them long in water, to remove that bitterness which would seem to us to render them hopelessly unpalatable.†

The three nations of antiquity most celebrated for their knowledge of agriculture, confining that term to the cultivation of the cereals, are China, Egypt, and Peru, but in each of these, there are traces of a time when these cereals were unknown, and in each their introduction is distinctly ascribed to individuals who are likewise the founders of the nation, and of the highly developed civilization subsequently attained. In China this

\* Hue's "Chinese Empire," p. 304.

† The fact that maize becomes more wholesome and palatable after long soaking in water and boiling, may perhaps account for its common use among the lower races.

teacher of agriculture was not Fohi, but the *second* emperor, or head of the *second dynasty*, some historians reckoning seventeen emperors between him and Fohi. The annals of China, indeed, seem to bear out in a remarkable manner the theory of the gradual development of civilization insisted on by modern ethnologists. In the time of Fohi, men are represented as differing but little from brutes, devouring every part of an animal, drinking the blood, and clothing themselves with skins; but Fohi taught them to make nets for fishing, and to bring up domestic animals for food and sacrifice; also he instructed them in music, and to use the 8 koua, or symbols of three lines each, instead of the quipus or knotted cords; he also regulated the laws of marriage, forbidding a man to marry a woman of his own name, whether related or not. Then Chin-nong introduced agriculture, inventing the necessary implements of husbandry, and teaching the people to sow five sorts of grain, and this he did, it is said, because the people had greatly increased, and the plants and animals were not sufficient for them. From hence he was called Chin-nong, which signifies Heavenly Husbandman. The five kinds of grain introduced by Chin-nong are still sown yearly by the Chinese Emperor at the great agricultural feast; they are wheat,\* rice, millet, beans, and another kind of millet called Cao leang, which is, I understand, that sort of corn called Guinea corn, or Caffre corn, which is so widely cultivated in Asia and Africa; but Du Halde probably speaks of maize when, in describing the second government of Tartary, he says, "They have in particular a great quantity of millet, and a sort of grain unknown amongst us, called by the Chinese of the country mai-se-mi, as being of a middle species between wheat and rice, but whatever its proper name be, it is of a good taste and in great request in these cold countries. It would, perhaps, thrive in some places in Europe where no other grain will."†

In Egypt the inventor of the art of agriculture was Menes, the first earthly monarch; in Peru it was Manco Capac, whose wife and sister Mama Oello, was the instructress in the arts of spinning and weaving. The analogies to be traced between the civilizations of these three countries are too numerous to be noticed here, but it must be observed that the great festival of the search for Osiris appears in China, where it is referred to a much esteemed Mandarin who was drowned, and in whose honour a yearly feast was instituted with small gilt barks moving on the waters in search of the Mandarin, with sports, feasts, and fights upon the river.‡ The feast also of Isis is represented, but, as it would appear, in the form of a survival. On the day that

\* Du Halde's "Hist. of China," vol. i, pp. 270 *et seq.*; vol. iv, p. 94.

† *Ibid.*, vol. i, p. 270.

‡ *Ibid.*, p. 210.

the sun enters the fifteenth degree of Aquarius, which is the commencement of spring, a feast is held in honour of husbandry and celebrated husbandmen; numerous figures in connection with this art are carried in procession, and among them a huge cow of clay, so large that forty men can with difficulty carry it; behind this cow, whose horns are gilt, is a young child with one foot naked and the other covered, representing the genius of labour and diligence. The child strikes the earthen cow without ceasing with a rod, as if to drive her forwards. She is followed by all the husbandmen with musical instruments, and by companies of masquers. At the governor's palace this cow is broken in pieces, and the fragments, with a number of small cows taken from the larger one, are distributed to the multitude, whilst the governor makes a discourse in praise of husbandry.\* The evident connection between this ceremony and the festival of Isis represented in Greece by the wanderings of Io, and its having analogies in Indian mythology, must strike every ethnologist, and there is one point in it of peculiar interest, which is its connection with moon-worship in reference to agriculture. It has been said by Sir John Lubbock that agriculturists worship the sun, and hunters the moon; this, however is only partially true, for we find among agricultural races a triad representing the sun, the moon, and the earth. Wherever stone or brick pyramids are found, and it must be remarked that they are found only among agricultural, and, therefore, semi-civilized races, the largest is dedicated to the sun and the second to the moon. Moon-worship in America Mr. Bancroft appears to assign to a later date than sun-worship, and thinks it has reference to that crescent land from which so many of the American tribes derive their mythical origin; but in China, in Egypt, and throughout the east, the moon appears to have been the older deity, and to stand out distinctly as the especial goddess of agriculture.† The importance of the sun and the earth to agriculturists is easily understood, but why the moon should hold so prominent a position as the female or productive element in nature is not so clear. In our cold northern clime we have come to look upon the moon simply as a light-giver and regulator of the tides, and to regard the ancient belief in her influence upon vegetation as a superstition long exploded; nevertheless it would appear that in warmer climates the influence of the moon is not altogether mythical. A gentleman long resident in the West Indies informs me that the growth of the sugar-cane during moonlight nights so greatly exceeds that which takes place when the moon

\* Du Halde, vol. ii, p. 119.

† It would appear to me that moon-worship originated with agriculturists, and sun-worship with metallurgists.

is not visible, that planters arrange their plantings so as to secure moonlight for the young canes. The knowledge of this fact probably regulated the great agricultural feast in China, which was always on the twenty-third day of the moon, thus securing to the young plants the full influence of the moon during the early stages of their growth. The observant Chinese also attach great importance to a fact unknown to us, namely, that some sorts of grain flower invariably by night, and others by day.\* The sign taught to Chinese children as symbolical of the moon is a rabbit pounding rice in a mortar,† and this sign, when compared with the prominence given to the rabbit in American sculptures and hieroglyphics, seems an additional argument in favour of a connection between the hemispheres in prehistoric times, especially if, as Buffon says, that animal is not a native of America. It appears eight times on each face of the pyramid of Xochicalco (Mexico), in conjunction with other unexplained signs.‡ Bancroft reports it as among the rock carvings of Utah, and it forms the first sign of the Mexican calendar, the close resemblance of which to those of China and Tartary, has always been held as a strong argument for former intercourse between the widely separated peoples using them.

In a former paper I endeavoured to prove that the introduction of the arts of civilization, and particularly that of metallurgy, might be traced to a race of sun and serpent worshippers, having strong affinities with the Chinese, Egyptians, and ancient Accadians, a race which it is the custom to term Turanian. This race, which, however it may be denominated, was certainly pre-Aryan, may, I believe, be credited with having carried the seeds of useful knowledge over the earth within a certain zone. Agriculture, weaving, pottery, pyramidal structures, and metallurgy may be attributed to them, although of course it does not necessarily follow, that all these arts were invented at once, or spread at the same time over the surface of the globe, but the strong resemblances to be traced everywhere in the primitive stages of these arts, and the peculiar religion which invariably accompanies them, in which the serpent and human sacrifices play a prominent part, seem to point unmistakably to the influence of one race, whilst everywhere may be traced, beneath the originators of this peculiar civilization, one or more aboriginal races treated by the superior or dominant caste, as slaves or outcasts, yet retaining always their own superstitions, their own customs, and even, as has been shown, their own food, which in some cases appears

\* See Du Halde, vol. iii, p. 2.

† Among some Aboriginal tribes in India the word for moon is the same as that for hare and roebuck.

‡ See also Tylor's "Anahuac." Bancroft's "Native Races of Pacific."



to have been prohibited to the newer race, as, according to the statement of Herodotus, beans were forbidden to the priestly caste in Egypt, although forming the chief food of the Aborigines there, as they did also in America and South Africa.\* Pythagoras also forbade beans to his followers, deriving his notions from Egypt.

A paper upon primitive agriculture, would evidently be incomplete without some notice of the modes of agriculture and the implements employed in early times. Singularly enough, although ears of corn, grain of so many kinds, and even seeds of raspberries, have been distinguished among the relics of the Swiss lake dwellers, hitherto no agricultural implements have been discovered. It is probable, that the implements employed by early agriculturists were of the simplest form possible—that, in fact, they were only pointed sticks used to scratch the surface of the ground. Such sticks, used as picks or hoes, are represented on Egyptian monuments; and pointed sticks are still the sole implements of some savage tribes; but they appear to be used by them somewhat differently from the Egyptian *sarcle*.

The Bushmen use a stick loaded with a perforated stone for digging; and in a notice of New Guinea, by the Rev. S. Macfarlane, as reported in the *Sydney Morning Herald*, of May 27, we find: "A large plot of land is turned over very systematically and quickly by a number of men standing in a row, with a pointed stick in each hand, which they raise and plunge into the ground simultaneously, and then use them as so many levers to turn over the soil. It is surprising how quickly they can turn over an acre of soil in this way."

Bancroft describes the nearest approach to the plough among the Nahua natives of America, as being sticks, often tipped with copper, and there can be no doubt that the primitive plough was simply a pointed stick dragged through the ground by men, so as to form a furrow. Such a plough is represented on the Egyptian monuments, differing from the *sarcle* only in having a cross-piece of wood for a handle, to which was attached ropes whereby it was dragged along by four men. The old Roman plough was but little better than this, excepting that the share was of metal, and even to the present day in India, China, and it may be said the whole of Asia, the ploughs used differ very slightly from the early Egyptian type. In America, we are told, that the natives still use, without improvement, the old Roman plough as introduced by the Spaniards, whilst in South Africa ploughs were unknown until the advent of Europeans, and are only just coming into use among the natives, whose

\* The Kaffrs still cultivate sparingly a peculiar bean which once formed a staple article of food among them.

sole agricultural implement, in addition to the digging sticks described above, was the hoe, an implement described by Burchell as resembling the adze or pecklo, but larger, which the women, who alone till the ground, raise above their heads, bringing it down with great force upon the hard sun-baked earth, thus merely breaking the earth irregularly, and putting in the seed.

The hoe described by Mr. Monteiro as the sole agricultural implement in use among the natives of Angola,\* where also women are the only agriculturists, is made of iron, resembling an oyster shell in shape, with a short spike burnt into the knobbed stick which serves as a handle, and some of these are made with a double handle, so as to be used by two women at once. These hoes strongly remind one of the Mexican axes described by Tylor,† who says that, notwithstanding the skill displayed in knife and arrow making, the Mexicans "never discovered the art of making a hole in a stone hammer. The handles of the axes shown in the picture writing are clumsy sticks, swelling into a large knob at one end, and the axe blade is fixed into a hole in this knob." It appears to me probable that many of the so-called stone celts, especially those of large size, may have been hafted in this manner, and used as hoes, but if the implements of the Swiss lake dwellers were as simple as those described, it would be difficult after so many ages to distinguish the pointed stick used for ploughing or pecking up the soil from those used in the construction of their dwellings. It also appears to me possible that the innumerable flint flakes found among prehistoric relics may have been used in a wooden frame, as they still are in the *tribulum* of the East, and as Dr. Daubeny‡ tells us they were used in Gaul at the time of the Roman Conquest, as harrows or threshing machines. The same writer also describes a large hollow frame armed with teeth, which served the purpose of a modern reaping machine, and which may likewise have represented a prehistoric implement.

The employment of women in agricultural pursuits seems to have been continued from superstitious motives in semi-civilized countries, and prevails even now in China. According to M. Huc,§ it is no uncommon sight to see a plough drawn by a woman, her husband walking behind to guide it, whilst the great agricultural festival in China, the use of terraces on the mountain sides, and the attention paid to irrigation, serve to connect the agricultural systems of China and Peru so closely, that Mr. Tylor ap-

\* See "Angola and the River Congo;" J. Monteiro and Burchell's "South Africa."

† Tylor's "Anahuac."

‡ "Six Lectures on Roman Husbandry;" Chas. Daubeny, M.D., F.R.S., &c.

§ Huc's "Chinese Empire," ii, p. 303.

pears to ascribe these usages in Peru to a Chinese colony. The use of ridges in agriculture seems to have been universal. Not only do they distinguish the garden beds in America, but Rennie describes them as underlying peat mosses in Scotland, where wheat cannot now be grown; and Dr. Daubeney tells us that among the Romans the corn was sown on ridges in wet soils, and between them on dry soils.\* The American corn-hills, described as used for the cultivation of maize, seem to be peculiar to that country, and although they have been adopted by Europeans at the Cape, the natives still sow maize on level ground; nevertheless Mr. Monteiro describes the use of little hillocks in Angola for planting the mandioca.† It is a difficult task to gather up the scattered threads presented to us by the study of *Primitive Agriculture*, but the somewhat meagre facts I have been able to collect appear to me to confirm the general conclusions of modern ethnologists. We see everywhere primitive man, a naked savage, devoid of every art excepting those necessary to self-preservation, his first improvements being the manufacture of implements of war and the chase. Man in this condition would seem to have spread gradually over the whole earth, for his relics are found everywhere, and his descendants, still in the same state of utter barbarism, are found in many outlying lands which have been cut off by changes in the conformation of the land from communication with races who have gradually acquired civilization; and may also be traced in low and outcast tribes down-trodden by conquering hordes.

The origin of civilization, like the origin of races, remains an unsolved problem. From the similarity to be traced in the monuments, myths, customs, and religions of all early civilized or semi-civilized peoples, I have been led to the conclusion that it was never independently acquired, but was the result of constant intercommunication by channels long since become impracticable, and when this intercommunication ceased, we find civilization arrested, as in America and China, and only continually and increasingly developed among nations who from war and commerce have kept up continual and constant intercourse with each other. There can be little doubt that the first great stimulus to civilization was given when man, driven by necessity, began to till the ground. The first successful efforts in this direction would lead naturally to others; but roots and fruits were evidently cultivated long before the cereals, and this early stage of agricultural knowledge is still represented among

\* Daubeney's "Lectures on Roman Husbandry," and Rennie on "Peat Mosses."

† See "Angola and the River Congo," p. 205, J. Monteiro.

the South Sea Islanders and among some of the lower aboriginal peoples of Asia, Africa, and America, although it is vain to conjecture when and where it first arose.

The cultivation of the cereals, however, represents a great advance in agricultural skill, but that this also was acquired at a very early period, the records of Egypt and China, and the relics from the Swiss lake dwellings sufficiently prove; and that it was not acquired independently by the lake dwellers is evident from the identity of the corn found with that grown in Egypt. The independent acquirement of agriculture in America has been affirmed by many, but I venture to believe it to be not yet proven. The absence of wheat and barley prove nothing, for the earlier civilizations of America were confined to tropical and semi-tropical regions, where these grains if introduced would not supersede maize, which there grows to perfection. It must not, however, be forgotten that all American legends, and legends usually have some basis of fact, unite in ascribing the cultivation of maize, as well as other customs wherein the civilized races of America resemble the ancient civilized races of the Eastern hemisphere, to foreign civilizers entering the country from the sea; and if maize be indeed indigenous to America, its presence in Asia and Africa prior to the time of Columbus, if proved, as I believe it can be, would go far to establish the fact of an intercourse subsisting between the hemispheres in prehistoric times. Nor must we forget, that the absence of cereal agriculture in those islands which may be supposed to represent the ancient stepping stones between the continents, may be accounted for, by prejudice and superstition, since the natives even now grow cereals very sparingly, whilst the cultivation of maize among races quite as low in the human scale in Africa, Madagascar, and New Guinea, would seem to point to the plant as a native of those regions as well as America, or to the extreme antiquity of its introduction to the Eastern hemisphere.

#### DISCUSSION.

The PRESIDENT, in thanking Miss Buckland, thought that there was still much to be done before the origin and development of all the cereals now or formerly in use could be ascertained, and expressed a hope that botanists would come to the aid of anthropologists in investigating the question. With regard to the stone implements which had been used in early times for agricultural purposes, some remarks would be found in his work upon stone antiquities. The earliest reaping machine seemed to be that mentioned by Pliny as in use in Gaul, by which the ears of corn were removed and deposited in a cart which was propelled in front of a horse.

Mr. HYDE CLARKE said that he had had great pleasure in presiding at the British Association at Glasgow when Miss Buckland's paper was first read, and that he would at the same time refer to a point in that paper as to Egyptian mummy maize, and to the weapons from the Amazon, exhibited by Mr. Henry Hyde Clarke. The languages of the Amazons appeared to belong to three groups. Those of the Ueanambu, &c., approached the dialects of the short races reaching from the Guinea Coast to the Akkas or Pygmies on the Nile. The Carib languages, containing resemblances to the former, had affinities with those of the fierce Dahomans and Whydams of West Africa. The third class belonged to a higher race, that of the Guarani or Tupi, reaching from the Plate river to Guiana. The language spoken in the lake villages, which had given name to Venezuela, was a Guarani or Agua, which he had correlated with the Agau of the Ethiopian region, and with the prehellenic Achaian of Hellas and the Caucasus. Lake Prasias, mentioned by Herodotus as having lake dwellings, was near an Achaian region. Now the remarkable circumstance affecting Miss Buckland's statement, that the maize found in the mummy was of the Paraguayan variety, is this, that an allied language is found in Paraguay and in the Ethiopian highlands near Egypt. Although he was of opinion that the line of migration by which the higher culture was brought into Peru and Mexico was by the South Pacific, he allowed full value to the northern line and that by Behring's Straits, by which much of the population of North America and some of that of South America had passed. He was also inclined to think that there must have been a prehistoric connection between South America and West Africa.

Miss BUCKLAND replied briefly to the remarks of the President, expressing her regret that she had unintentionally appropriated the suggestion in "Stone Implements," as to the probable use of some of the stone celts and flint flakes for agricultural purposes. She also observed that maize was quite unknown excepting in a cultivated form, no wild plant bearing any affinity to it having been recognized by botanists.

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Mr. H. Hyde Clarke exhibited some weapons from the River Amazon, on which Mr. Franks, Mr. Hyde Clarke, and others made some remarks.

Lord Rosehill then exhibited some remarkable flint implements from Honduras, and briefly described them.

#### DISCUSSION.

The President, in thanking Lord Rosehill, congratulated him on the acquisition of so remarkable a series. He observed, that one of the implements bore a striking resemblance to those of what had been termed "the shoe-shaped type" from the river-gravels. It was remarkable that in more than one of the serrated instruments



the groups of points or projections were either five or ten in number, and he inquired whether this peculiarity had been observed in other specimens, and whether it was to be regarded as accidental or connected with some decimal system of counting.

In reply to some observations by Mr. Franks, the President said that the only Honduras specimen in his collection besides a spear-head like those exhibited was a lance-head of chalcedony, of much finer workmanship, which was found at Comayagua.

Mr. Hyde Clarke observed that Mr. Evans's suggestion as to the number of notches by fives on the Kreaslike weapon was well worthy of consideration. Although the arrangement was peculiar, there appeared to be a total of 28, which might correspond to a lunation. It was possible, as the two ends were of unequal size, that this sinuous weapon might represent a serpent. This was also to be taken into consideration with Mr. Blackmore's proposition that such instruments were used in human sacrifices. He did not, however, concur with him that Mexican practices would necessarily form an example for Central America. One reason he had for this conviction was, that more than one of the dialects of Lenca have a distinct relationship to the Kouma and Logba of West Africa, and he had lately shown the like geographical relationship for the mythology of a language of the Bribri of Costa Rica in Central America. The crescent weapon had twenty knobs, but none of the instruments, except the sinuous one, appeared to bear symbolical numbers. As to the knife, which bore some resemblance to a human figure, that was perhaps held as a dagger by the two legs, and should be regarded in reference to Mr. Blackmore's suggestion.

Mr. Blackmore, Mr. Franks, and others made observations on the exhibition.

Thanks were returned to the exhibitors of the above, and the meeting separated.

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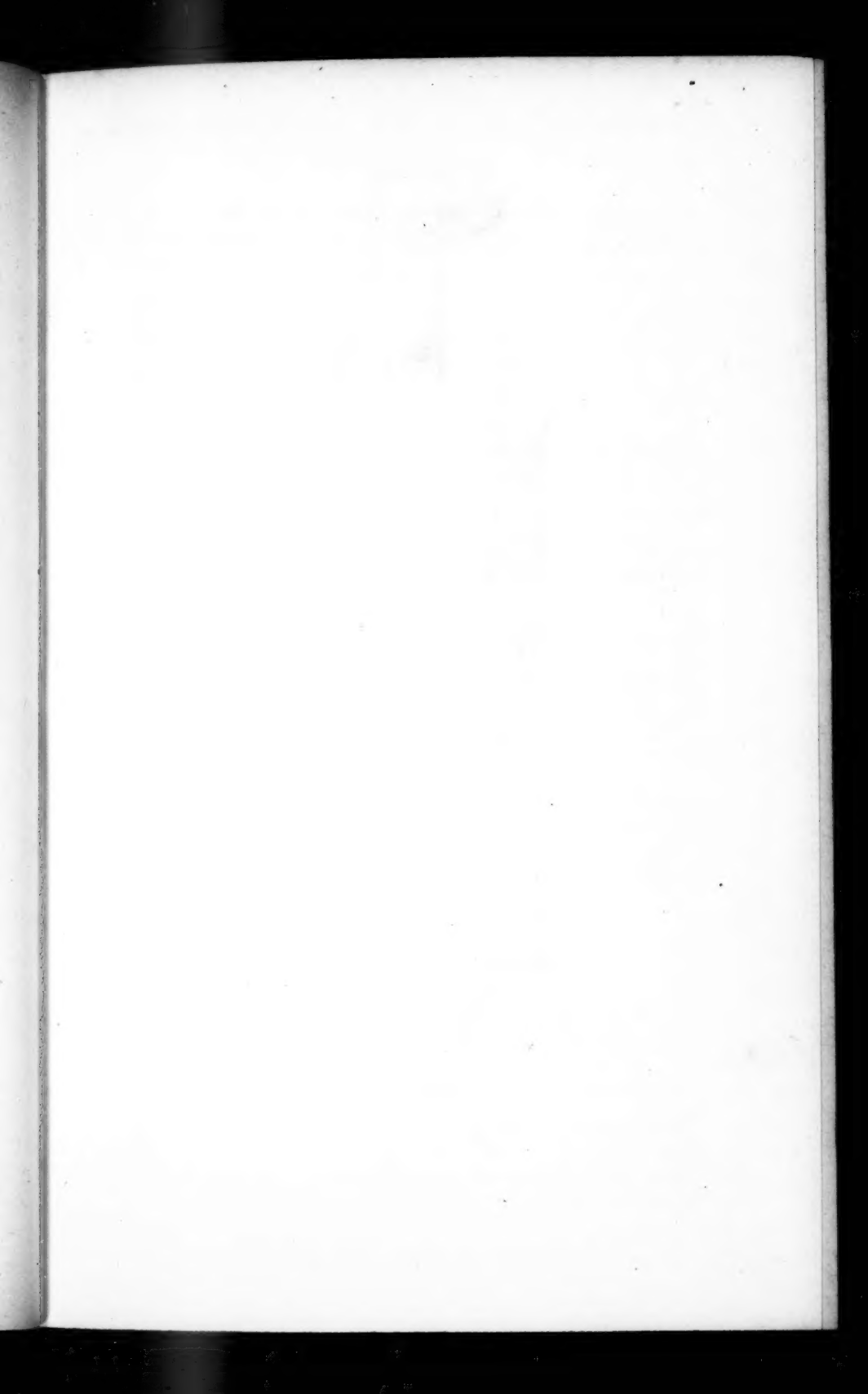
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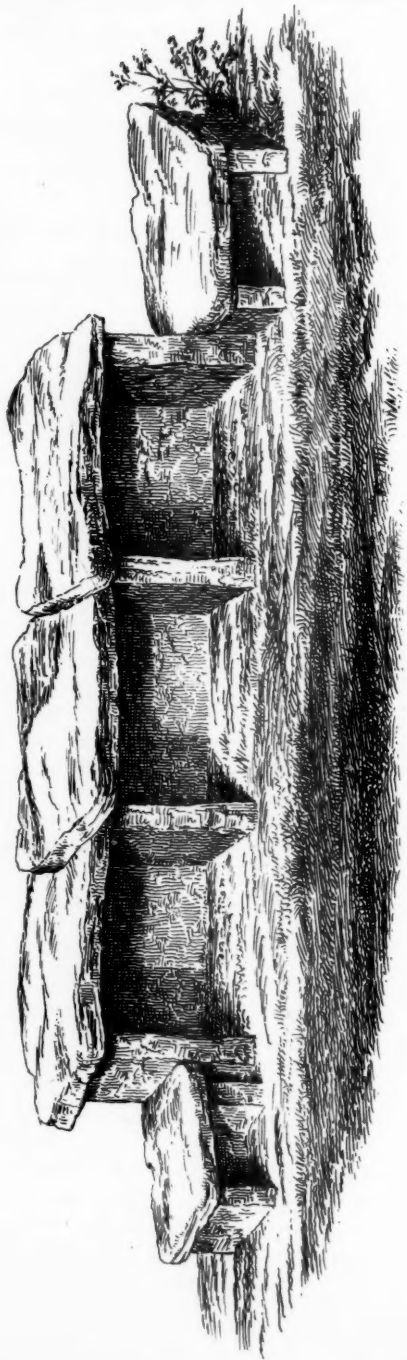
JOHN EVANS, ESQ., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following new member was announced: A. H. KIEHL, Esq., of Cardiff.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same.





FIVE-CELLED OPEN-FRONTED DOLMEN, FORMERLY  
EXISTING NEAR NIDI MAND, NILGIRIS.  
(FROM A ROUGH SKETCH MADE ON THE SPOT).

FOR THE LIBRARY.

- From the SOCIETY.—*Jahrbuch der K. K. Geologischen Reichsanstalt.* Vol. XXVI, No. 3; *Verhandlungen*, do. Nos. 11—13.  
From the SOCIETY.—*Mittheilungen der Anthropologischen Gesellschaft in Wien.* Vol. VI, No. 5.  
From the ASSOCIATION—Report of the Geologists Association for 1876.  
From the ACADEMY.—*Atti della R. Accademia dei Lincei Anno. CCLXXIV.* Vol. I, Nos. 1 and 2.  
From the ACADEMY.—*Bulletin de l'Académie Imperiale des Sciences de St. Petersburg.* Vol. XXII, No. 4; Vol. XXIII, No. 1.  
From the EDITOR.—*Matériaux pour l'Histoire de l'Homme.*  
From the SOCIETY.—*Annuaire de la Société d'Ethnographie*, 1877.  
From the EDITOR.—*Revue Scientifique*, Nos. 34 and 35. 1877.  
From the EDITOR.—*Nature* (to date).

Miss Buckland presented a digging stone from the Cape of Good Hope, for which thanks were returned.

Mr. M. J. Walhouse then read a paper entitled—

ON NON-SEPULCHRAL RUDE STONE MONUMENTS. By M. J. Walhouse, F.R.A.S.

EVEN in the earlier part of the present century, many fanciful theories were current respecting the nature and intention of megalithic monuments, cromlechs, stone circles, and the like; and much ingenious speculation was wasted in tracing the coils and windings of serpent-temples in the scattered stones of Wiltshire and Somersetshire, or, as some would have it, in identifying them with Temples of the Sun or Bardic Circles. The Druids were seen everywhere; "rock gnomons" indicated their knowledge of astronomy, "rock basons" and "rocking stones," often natural, were ascribed to their skill in mechanics, and cromlechs were held to be the "altars" on which they celebrated their bloody rites; while any chance marks on their surfaces were channels to drain off the blood of victims, and holes or chinks in the slabs were magical openings, through which auguries were drawn from their dying groans and cries. When search succeeded theory, the spade proved the revealer of the secrets of such monuments, and the incontrovertible dispeller of Druidical and Dracontian dreams; and their intention was shown to be sepulchral in such an immense majority of instances that theory swung perhaps too absolutely to the other extreme, and refused to see in them any other nature or purpose. It is desired in this paper to offer a few remarks upon some megalithic remains that have come under my observation in India and else-

where, which may be ascribed to purposes other than sepulchral, and in many instances are connected with existing worship and observances. To begin with the simplest of monuments, the heap of stones or cairn—though usually sepulchral and piled over a tomb—it is occasionally rather memorial or ceremonial. Twice in India in wild mountain-passes I have seen cairns raised on spots where men had been carried away by tigers. Passers-by added stones to the heap, with the idea of propitiating the angry ghost of the unlucky man, which was believed to haunt the spot, and guide the tiger in its attacks on wayfarers. Such heaps are sometimes also raised at spots on the plains where travellers have died suddenly, from sickness, or in any unusual way, and where stones are scarce or have failed, bits of rag are tied to a neighbouring thorn-bush, after a custom that appears to prevail from China to Ireland, prompted possibly by an idea of propitiation. Though the Old Testament records three instances of cairn-burial, when Absalom, and Achan, and the King of Ai were laid under “a very great heap of stones,” the earliest mention of cairns is as boundary-marks.\* In the agreement between Jacob and Laban recorded in the 31st chapter of Genesis, they gathered stones and made a heap expressly called a “heap of witness,” on which they sat and did eat, as a ceremonial compact, and declared the heap to be a witness between them, that neither would pass over it into the territory of the other. The late Professor H. H. Wilson has translated a hymn from the Rig Veda, addressed in the earlier verses to Mṛityu or Death, and in the last to the Pitris or Manes, the 4th verse of which is remarkable as containing the earliest, and, so far as I know, the only Sanskrit allusion to rude stone monuments, and also as seeming to intimate a purpose not sepulchral, but propitiatory, and, as in Genesis, boundary-marking. “I place this circle of stones for the living; on this account, that no other may go beyond it. May they live a hundred years, keeping death at a distance by this heap.” In Livingstone’s Expedition to the Zambesi, at page 229, there is an account rather curiously recalling the transaction between Laban and Jacob. On passing a large stone cairn in the country of the Batoka, the guide related that once upon a time a tribe was going to fight with another tribe, but sitting down there consulted and agreed that it would be more like men to raise this heap of stones as their protest against the wrong the other tribe had done them, which,

\* In old Greece heaps of stones, called Hermaia, were commonly raised at crossways and on boundaries. They were sacred to Hermes, and each passer-by threw a stone on as an offering to the god. Homer (“Odyssey,” xvi, 471) mentions such a heap near Ithaca. Strabo saw similar heaps on the roads in Egypt (xvii, p. 818)



having accomplished, they returned quietly home. And again in his *Last Journals*, page 90, "we passed two cairns this morning at the beginning of the very sensible descent to the lake. They are very common in all this Southern Africa in the passes of the mountains, and are meant to mark divisions of countries, perhaps burial-places, but the Waiyan who accompanied us thought that they were merely heaps of stone collected by some one making a garden. The cairns were placed just about the spot where the blue waters of Nyassa first came fairly into view." This recalls the cairn piled by the Ten Thousand where the Euxine burst into sight, and the army raised the memorable cry.

Closely akin to unsepulchral cairns must be the *Mâni*, or long heaps of stones that excite the surprise of travellers in Thibet and Tartary. The late Mr. C. Horne, of the Bengal Civil Service, F.L.S., F.R.A.S., &c., who some years ago travelled over some of the highest Himalayan passes, wrote to me respecting them: "The Lama Tartars build long walls of loose stones, usually about 6 feet thick and 5 high; sometimes as at Nako, half a mile long. Every native passes them to his right; none seem to know why: hence there is a path worn on that side, and every one adds a stone; they must be the growth of centuries, every generation adding some yards. The heaps often have flags stuck on them and scraps of paper, with some sacred writing, as also horns of ibex, wild sheep, goats, &c., and round boulder-stones, inscribed with the Buddhist prayer in a circle, are often laid on the top. A great mystery attaches to them; none can explain their uses certainly; some say they are devotional, others that they were built on return from long journeys. The farthest object I saw in Tartary was a long double range of these walls." Mr. Wilson recently in his "*Abode of Snow*" mentions having passed hundreds of these *Mâni* on his journey, sometimes in the most desolate situations, and remarks that the prodigious number of them in so thinly peopled a country indicates an extraordinary waste of human energy. Mr. Horne also mentioned that single heaps of stones abounded everywhere, "existing on every hill-top and pass; some evidently of great antiquity; in some places they are called *Thôr*.\* At the entrance of the province of Kurnawûr there is a large field of them, all set up by grateful hill-men returning safe from the plains. Another cause of them is the setting of boundary marks by petty chiefs in old times. Presents too

\* The missionaries, Hue and Gabet, encountered similar large heaps on the great plateau in Chinese Tartary, there called *Oboes*, and stuck over with boughs on which strips of inscribed paper are hung. MM. Hue and Gabet say the Tartars worship the Spirit of the Mountain at them.

are sometimes given by wealthy people to erect stone heaps on apparently inaccessible peaks to commemorate their names. The highest I saw was on the Shatûl peak (17,000 feet), near Kurnawûr. The climber was paid 100 rupees by a rich merchant, but disappointed his employer, as the 'Thôr' is called by his, and not the merchant's, name. I never heard of people being buried under these heaps." The foregoing examples will suffice to show how cairns, both in ancient and modern times, may have had other than sepulchral purposes. The legend of Izdubar or Nimrod, between 2,000 and 3,000 B.C., in the Babylonian tablets, says of him, "He collected great stones; he piled up the great stones."

A brief reference will be sufficient to perhaps the most extraordinary and enigmatical groups of megalithic remains, the great assemblages of stones disposed in rows, avenues, and alignments in the neighbourhood of Carnac, in Brittany, and in England at Ashdown, in Berkshire, and in many places on the Dartmoor.

Somewhat analogous remains in the East have been described by the late Col. Meadows Taylor in Shôrapûr, a province of Hyderabad, in the Deccan. The secret of these monuments has not yet been certainly read. Mr. Fergusson's conjecture that they are the memorials of battle-fields seems as good as any that has been proposed, with reference at least to most; at any rate, there has been nothing discovered proving them to mark burial-places. I find it, however, difficult to accept Mr. Fergusson's view that the long parallel lines of stones on the Dartmoor represents an army, or two armies, drawn up in battle-array. I have personally examined a considerable number of these strange narrow paths and found them in all sorts of places, in hollows on hill-sides, and running over the brows of hills. Many exist unnoticed amongst the fern and bushes of the rougher tracts, and hardly could denote battle-arrays. The avenues under Kes Tor, near Chagford, in particular, referred to by Mr. Fergusson ("Rude Stone Monuments," p. 56), as possibly representing a battle-array, which I carefully walked over last summer, did not appear to me to carry out the idea. The long double lines of stones starting from the "Long-stone," a tall menhir, bend round the sides of an eminence under the somewhat altar-shaped rocks of the Kes Tor, on the top of which a very large and regular rock-bason, till lately filled with and concealed by peat, has been discovered, and seem to stretch on, till disappearing, toward the great stone circle, indistinctly visible a long way below in a hollow on the other side of the Teign. These mysterious lines of stones would often recall processional paths were they not so narrow, beginning and ending so abruptly, ap-

parently without purpose or direction, and at times in situations hard to reconcile with the idea: their meaning has not been penetrated, but they suggest nothing sepulchral.\* In India the remains, apparently of this class, at Shahpûr, in the Shôrapûr principality, were considered by Col. Meadows Taylor more remarkable and interesting even than the cromlechs and stone circles which also abound in the neighbourhood and with which they are sometimes associated. Huge masses of granite are disposed in an exact parallelogram 400 feet by 260, or sometimes in squares, enclosing similar figures of smaller rocks, and in the centre of some rises a tumulus, which excavation has shown to be sepulchral or possibly sacrificial. These squares are grouped together over large areas; the rocks composing the outer lines are from 7 to 10 feet long, nearly as broad, and from 4 to 7 feet high, and must have been brought from hills nearly two miles distant over a difficult surface; an undertaking impossible in that country at present. All the squares do not enlose tumuli; in one large group there are but two, but as cairns do accompany them in several instances, it would not be safe to assert that they could be other than appurtenances at least to sepulchres. As to the multitudinous groups of upright stones that so remarkably characterise the Kasia Hills bordering on Assam, Major Godwin-Austen, in a paper read before the Institute, has shown that they have no connection with funeral obsequies, but are memorials raised to propitiate the spirits of the deceased and to perpetuate their memories. Regular trilithons often occur amongst them, and it is remarkable that amongst another aboriginal tribe, the Santhals, in Bengal, a trilithon that must be a very striking monument is at this day an altogether devotional object. It is described at page 192 of Dr. Hunter's "*Annals of Royal Bengal*" as "three huge monoliths of gneiss of great beauty, two upright, the third laid across them. The stones are upwards of 12 feet in length, each weighing upwards of 7 tons, quadrilateral, 10 feet round, the horizontal stone kept in its place by a mortise or tenon. Origin unknown: worshipped by the Santhals at the West Gate of their Holy City in Bheerbloom."

Trilithons that must be not dissimilar to this have been described by Dr. Barth in the regions about Tripoli, in northern Africa. Two are figured at pages 411-12 of Fergusson's "*Rude Stone Monuments*." There is no reason to regard them as sepul-

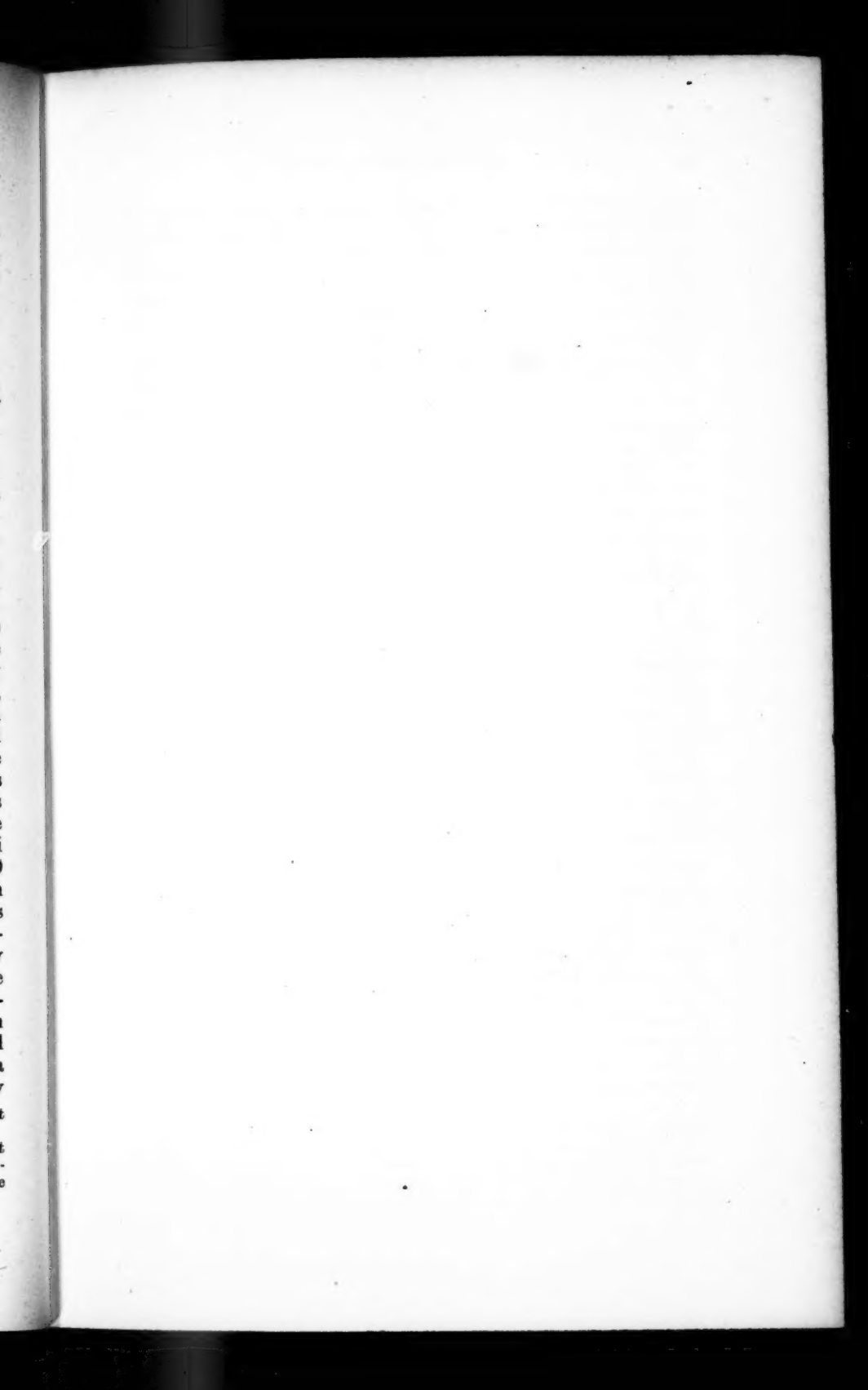
\* Since writing the above, I find that in the Appendix to vol. i of the *Journal* of this Institute, at page cxi, et seq., Mr. Spence Hardy has described these Dartmoor avenues, and thinks they may be "burial places for the honoured dead," whilst Dr. A. Campbell considered them to be "indisputable signs of cultivation." All these so different opinions show that these remains are still enigmatical.

chral, and Dr. Barth, a competent observer, thinks them "evidently connected with the religious rites of the ancient inhabitants of these regions." And so it may be inferred was "the gigantic circle with huge upright stones, 15 feet high, and some with long blocks laid across," seen by Mr. Palgrave in the previously unknown wastes of central Arabia, of which, it is to be hoped, more may be heard some day.\*

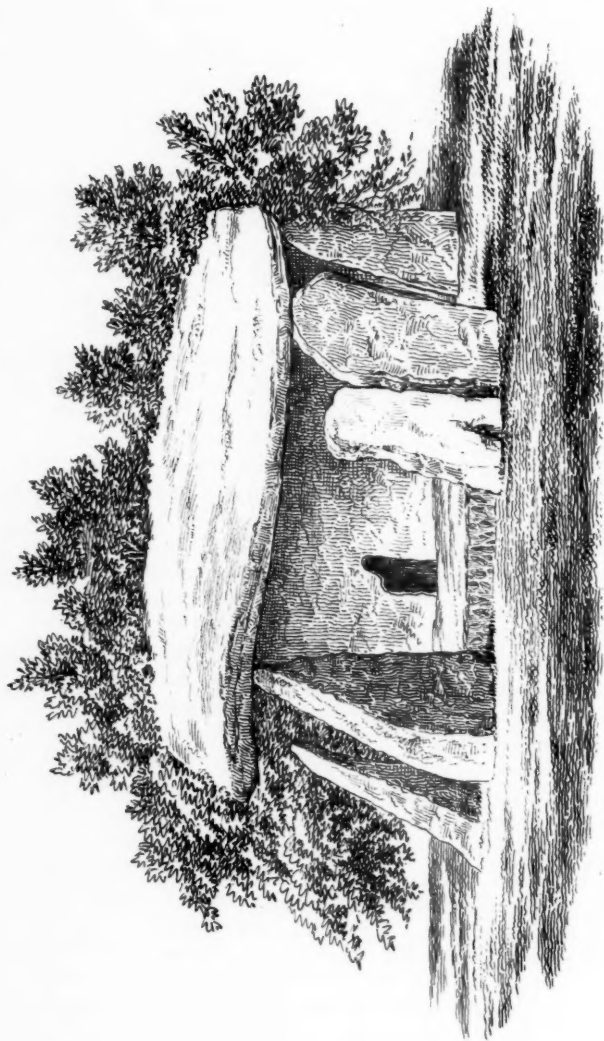
Professor Max Müller remarks, "Children all over the world, if building houses with cards, will build cromlechs; and people all over the world, if the neighbourhood supplies large slabs of stone, will put three stones together to keep out the sun or the wind, and put a fourth stone on the top to keep out the rain;" and whenever a people become led to form a rude image and reverence it, or regard a rough stone with superstitious ideas, it was in such a structure they may be supposed to have been impelled to place it. This was strongly borne in upon the mind on first seeing the small cromlech-temples used to-day by the people in some parts of Southern India. I had become fixed in the belief that all cromlech-like structures were sepulchral, till once on emerging from a wild mountain-pass on to the table-land of Mysore I saw by the wayside a primitive temple consisting of back and side slabs set on edge, with a covering slab laid over, the front open, a rude image of Hanumân within, and a few flowers strewn before it. The appropriateness of such a construction, and the readiness with which it could be imagined and raised by a rude people in a wild locality, were at once obvious. I afterwards saw some more similar rude-stone temples always in unfrequented tracts. Of course these rustic shrines were not prehistoric, but their use and tradition may have come down from prehistoric times.† Subsequently on the Shiarâi Hills, a fine mountain-range with a table-land of about 4,000 feet general elevation, in the district of Salem, midway between Madras and the Malabar coast, I found these temple-cromlechs in common use by the Malayâlies = hill people, a harmless agricultural tribe, speaking Tamil, and not apparently materially different from the Tamil inhabitants of the plains, from whence they doubtless came. They have several villages and a considerable amount of cultivation on the plateau and its lower slopes. In every village there is at least one temple-cromlech, constructed of slabs with one side open, usually under a tree, containing a crowd of lingam-stones, splinters of rock or long pebbles, mostly

\* In Tongataboo the officers of H.M.S. "Calliope" met with a monument "resembling the larger gateway stones of Stonehenge."

† Close to Bangalore there is an ancient temple approached by a magnificent avenue of trees, beneath which there is a number of small hut-temples, so primitive as to consist only of three upright stopes with a superincumbent slab on the top, and inside a rude effigy of a deity carved on the stone forming the tuck.







A CROMLECH-TEMPLE, ON THE SHIVARAI HILLS.  
MADRAS.  
(BURIED IN COFFEE BUSHES)

tipped with red paint, and occasionally a small image. In two places I saw a collection of eight or nine of these primitive temples arranged in a semicircle under a huge tree. The crowd of stones in them has a curious appearance, for the people appear especially to choose any of unusual description: splinters of milk-white quartz or black serpentine, water-worn pebbles of various colours, any long piece of stone or pebble that particularly catches the eye, seems to have been picked up and added to the collection. Pieces of petrified wood, and what is most interesting, often quite a number of regular celts, examples of which may be seen in Col. Lane Fox's collection in the Bethnal Green Museum. I regret not having ascertained whether there was any particular name or idea associated with the celts. A rough sketch of one of these rude stone temples is annexed: in the centre there was a large splinter of black stone surrounded by some dozens of small pebbles, all tipped with paint, which is renewed on particular occasions; flowers, boiled rice tinged yellow with turmeric, and fruits are laid before them. Much further to the north, amongst the aboriginal hill tribes of Ráj-mahal, like structures and worship appear to be used. The Rev. Mr. Christian reports that "a large black stone in an enclosure like a hogsty (which must mean one of these cromlech-shrines), is a principal object of their worship."

Experience indeed seems to show that *open-sided* structures of the above class were mostly free-standing and non-sepulchral, whilst cromlechs closed on all sides are tombs invariably containing signs of interment, and appear to have been always originally covered by a tumulus. Open-sided dolmens of the former class, though frequent in Wales and Cornwall, are rare elsewhere in England. Of the half-dozen or so recorded I have seen that by the Roll-right stones on the Warwickshire and Oxfordshire boundary, that at Drewsteignton in Devonshire, called locally the Spinster's Rocks, and Kit's Coty house, near Aylesford, known probably to many present. None of these seem to me to have been sepulchral or ever covered by a tumulus, and I have never heard of anything having been found in them betokening interments. The difference between them and the great chambered graves at Uley, Stoney Littleton, in Somersetshire, and in Guernsey, which I have also inspected, is very obvious. Though Kit's Coty House is commonly called Horsa's Grave, and that chieftain was doubtless buried in the neighbourhood, Professor Stephens, of Copenhagen, considers that Bede's description of his monument, "*Monumentum sub nomine insigne*," rather suggests a standing stone carved with his name.

On the Nilgiri Hills, in Madras, there is a large number of

open-sided dolmens of this class, several of which present the special peculiarity of being sculptured inside with hunting scenes, processional groups, and figures commemorative of Satis or widow immolation. Usually a large dolmen so sculptured is surrounded by smaller plain ones, and consists of a single cell, or sometimes of two, three, four, or even five in a row. In the "Journal of Anthropology, No. I, p. 43, Major Ross King describes a two-celled sculptured dolmen, found by him on the southern edge of the Nilgiri plateau, as having the whole interior, that is to say, the inner face of each slab, covered over with carving; and this is a rough sketch of one discovered by myself, which has, however, been subsequently thrown down and destroyed to make way for coffee planting. It consisted of three large central cells with a smaller at each end; the middle cells were roofed with large covering stones overlapping one another at the edges, and the supporting slabs were covered within by rudely sculptured hunting and processional groups. Nothing denoting an interment has been found in any of these dolmens, whether carved or plain, though burial cairns of another type are abundant on the hills. The various Nilgiri tribes, who have been sufficiently often described before this Institute, lay no claim to them, and regard them with diverse feelings of superstition. Thus the *Todas* will not *touch* a sculptured dolmen, and the *Bādāgas*, the most numerous and recent of the hill tribes, have turned them into deities, not looking on them as temples, but as actual gods; and when it was attempted to remove some of the carved slabs for a museum they petitioned strongly against the proceeding, saying, "It is our God." Nevertheless it is certain that they who are known to have migrated to the Nilgiri from Mysore, three centuries ago, neither raised the dolmens nor sculptured the stones, any more than the *Todas*, who will not *touch* them; and whether the builders of the dolmens also wrought the carvings is a debatable point. The latter are distinctly Hindu, and bear allusions to the *Bāsāva* creed, which originated about nine centuries ago. It may be that fugitives from the plains below, in those ages of which nothing is known but that they were filled with wars and turmoil, may have made those carvings on the stones of the temple-like structures they found standing, but the whole point is doubtful. At any rate there is nothing to connect them with burial purposes; no vestige of urn or interment was discovered in the five-celled dolmen found by me, but in one of the large compartments, in which a man could easily sit, there lay a long piece of polished leg bone, which the people with me said had been put there by the *Kurumbars* to denote a deity. That dwarfish half wild jungle race, which with their near relatives the *Irulas* (= "children of

darkness") inhabit the most secluded densely wooded fastnesses of the mountain slopes, are to my mind not the least probably connected with the aboriginal builders of these monuments. Some threads of connection still exist. The Kurumbars of Mulli, one of the wildest Nilgiri declivities, come up annually to worship at one of the dolmens on the table-land above, in which they say one of their old gods resides. Regarded with fear and hatred as sorcerers by the agricultural Bādāgas of the table-land, one of them must nevertheless at sowing time be called to guide the first plough for two or three yards, and go through a mystic pantomime of propitiation to the earth deity, without which the crop would certainly fail. When so summoned the Kurumbar must pass the night by the dolmens alone, and I have seen one who had been called from his forest-dwelling for the morning ceremony, sitting after dark on the capstone of a dolmen with heels and hams drawn together and chin on knees, looking like some huge ghostly fowl perched on the mysterious stones.

Both the Kurumbars and Irulas, when one of them dies, have a custom of depositing a long water-worn pebble (*devva kotta kallu*) taken from the bed of a stream, as a memorial, in some of the sculptured dolmens. One large dolmen at Melkundah, in particular, was found filled up to the capstone with these pebbles, which must have been the accumulation of generations.\*

Still pursuing the subject of open-sided dolmens, Colonel Meadows Taylor reports that they abound in Sorapur in the Deccan, "open at one side, and formed of three large slabs for walls, and one for a roof. All such cromlechs I have seen are empty." Intermixed with them, however, are numbers of "kistvaens smaller than the cromlechs, constructed on the same

\* In Brahman funeral ceremonies there is a usage curiously recalling this custom of a primitive outcast tribe, and perhaps retaining some vestige of stoneworship. After a Brahman's body has been burnt, there are ten days' mourning; on the third day the relations and friends re-assemble at the burning-ground and, after the bones and ashes have been gathered, a small bank of earth is thrown up, on which three stones are set, one called by the name of the deceased, another by that of Yama, the Lord of Hell, and the last is called Rudra, the causer of tears. The three stones are decorated with flowers, and a sacrifice offered them amid much lamentation. The leader of the funeral then takes the three stones home with him, and on the tenth day, after other ceremonies have been gone through and the stones again worshipped, the leader takes them, and going into water up to the neck, turns towards the sun and addresses it thus: "Up to this day these stones have represented the deceased; henceforth let him cease to be a corpse; be he now received into Swarga: there let him be happy as long as Ganges shall flow." Saying these words, he casts the stones behind him, and returns to the bank; so the mourning ends. Another allied primitive practice is that of the Kharrias, a very wild jungle tribe of Singbhum in Bengal. This people, after a death, set up a tall rough slab of stone close to the house, to which, as representing the deceased, they make daily oblations.

principle, but closed on all sides. Generally a circular hole exists in one of the sides." These closed and holed dolmens always contain interments. Here the same principle obtains of open-sided dolmens showing no sepulchral character, and never having been covered with a mound; but it is peculiar that in this instance the closed and holed sepulchral dolmens elsewhere, originally at least, subterranean, stand mixed with the open class, and cannot have ever been underground. This is accounted for probably by Colonel Meadows Taylor's remark that "the whole of the ground covered by the erections is rock, into which the slabs have been fixed, resting upon the rock." Some unknown cause may have influenced the choice of such a spot, the nature of which made it impossible to construct the sepulchral chambers underground. In the mountainous province of Coorg closed and holed kistvaens, sunk underground and filled with sepulchral deposits, are also abundant; but there is one remarkable group which shows no sepulchral character. Near Somawarpettah, on the rocky summit of a hill commanding a fine prospect all round, there are four large cromlechs, not closed, but consisting of huge overlying slabs supported by masses of stone. The largest slab is 11 feet 8 inches long by 8 feet wide. Each cromlech is surrounded by a circle of stones, stands out in high relief on the hill top, and has never been covered with earth. They were quite empty; nothing connected with interments could be found in or about them, and their appearance is certainly suggestive of altars. Somewhat similar to these is a cromlech at Pallicondah, 12 miles from Vellore, in the Madras Presidency, the one single free-standing dolmen, with no kistvaen or subterranean character about it that I have seen or heard of *on the plains*. A figure inadequately representing its massiveness and actual appearance will be found at page 491 of "Rude Stone Monuments." The capstone is 12 feet long by 8 wide, and about  $2\frac{1}{4}$  thick, and supported, not by slabs, but by six large rounded boulder-like masses of granite, two at the north end, two at the south, two smaller, not touching the capstone, on the west side, and the east side open. The capstone is elevated about 5 feet from the ground, and on its upper centre were four round depressions, placed

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thus, o      o, that to the right being smallest. Mr. Fergusson

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speaks of it as "a sepulchral mound," but it gave me no such idea, for it stands upon a granite platform that rises above the soil, with no means for interment beneath. Open-sided dolmens perfectly corresponding with the Indian and European examples are also abundant in Palestine upon the east side of the Jordan. Mr. D. Robertson Blaine describes them in the "Athenæum" as



all formed on the same plan. "Three slabs of unhewn granite are fixed perpendicularly in the ground, closely and at a right angle to each other, thus forming three sides of a square. Upon these a fourth slab is laid, overlapping its supports, the south-east side always left open; the supporting slabs about 6 feet high, the top slab an irregular square of about 12 feet." No excavations appear to have been made, but judging from analogy they are not sepulchral. The Arabs call them *Beit el Ghûl* = House of the Ghoul, and are terribly afraid of the spot.

The peculiar class of megaliths called "demi-dolmens," in which one end of the capstone always rests on the ground, also has no discoverable connection with interments.\* The only example I have ever seen is one on the north coast of Jersey. Captain S. P. Oliver ("Journal of the Ethnological Society of London," vol. ii, p. 66, New Series), speaks of it as "a doubtful demi-dolmen in the northern part of Trinity parish, called the Roche à la Fée," which he was unable to visit. It is on a rocky point of the high cliff between Petit Fort and Vicard Harbour, a beautiful and commanding spot overhanging the sea. The stone is of irregular shape, enormously large and ponderous, 5 yards long,  $4\frac{1}{2}$  broad, and about  $2\frac{1}{2}$  in greatest thickness, and whereas all the other prehistoric remains in the island are of granite, this only is of a pudding-stone formation prevalent in the north-east part of the island, and it has no conceivable sepulchral connection. Another Jersey antiquity is spoken of by Captain Oliver in the same page, thus: "There is some rumour of a trilithon, called the *Pré des Trois Roches*, having existed close to the sea at St. Ouen, but I could find no trace of it." Indeed it is no easy matter to discover it. I was hunting for it more than half a summer's day in 1860, and found it at last in a field called *Pré des Trois Roches*, about 500 yards S.E. of the piece of water called St. Ouen's Fishpond. The two standing stones are thick and stumpy, nearly 5 feet high; a third stone, of the same apparent size, lies close by, on the north, flat, embedded in the ground. This megalith also seemed to me non-sepulchral.

I would venture to say little upon stone circles. The far larger proportion of them is undoubtedly sepulchral. Of course all that enclose tumuli or tomb-chambers are. Mr. Fergusson holds that all circles up to 100 feet are sepulchral; when they become larger, consisting of stones rising several feet above the surface, and enclosing no form of grave, they may possibly have been devotional. Of examples known to me, I cannot but agree

\* It is now asserted, apparently with reason, that these megaliths are only dilapidated dolmens that have lost some of their supports, and have no claim to be regarded as a separate class.

with the late Rev. C. H. Hartshorne, F.S.A., in considering the large circles on Corndon, on the Shropshire and Welsh border, as having rather a religious application: nothing, I believe, has been discovered in them denoting burials (*see* "Salopia Antiqua"). The fine circle, too, on the border of the Dartmoor, on the bank of the Teign, above Chagford, seems to me non-sepulchral. On the Nilgiri hills, on the north declivity of the highest summit, on a spot of exceeding picturesque beauty, where several wooded slopes converge, there is a double circle, 35 feet in diameter, of stones of rather small size, none exceeding 3 feet above the ground, except two, which form an entrance on the south side. The stones are placed rather close together, and the inner and outer rings are a yard apart. No trace of an interment has been discovered in this circle, the only one of the kind known to me on those hills. The Irūlas previously referred to have, however, two temples on the top of Rangaswami Peak, the highest eastern Nilgiri summit, where they twice a year worship Vishnu under the name of Rangaswami, with much ceremony. The temples are circles of rough stones, each enclosing an upright stone that represents the deity. One of the circles is of recent date. The Rev. Henry Baker, of the Travancore Mission, informed me that though tumuli and kistvaens abound on the Travancore Hills, in the extreme south of India, he had only seen one stone circle, much dilapidated, and that it contained no marks of interment. The natives called it a Rāshi hill of Parasurāma, from a tradition that when Parasurāma (Rama of the Axe) created Kerala (the long strip of seaboard between the Western Ghauts and the Indian Ocean), rolling back the waters, he sowed the new land with *rāshies* (the small spangle-like gold Hindu coins frequently found all over the country), and buried the surplus in this circle. The "Athenæum" of 31st May, 1851, reported that Sir Robert Schomburgk had discovered in St. Domingo "a granite ring, 2,270 feet in circumference. In the middle of this circle lies an idol, nearly 6 feet in length, formed likewise out of granite. In all his travels in Guiana or the continent Sir Robert never met with such a monument." This too appears an instance of a devotional circle.

It may not be out of place to conclude this paper with some instances of worship and observances, unconnected with funeral rites, paid to rough stones anciently and at the present day. Pansanias expressly affirms (Lib. vii, 22) that in the most ancient times, universally amongst the Greeks, rough stones received divine honours instead of images\* (*ἀντὶ ἀγαλμάτων*

\* Lucian (de Deā Syriā) affirms that the Egyptians first attained knowledge of divine things and built temples, which the Assyrians learnt from them, but

ἔχον ἀργοὶ λίθοι θεῶν τιμὰς), and in different passages he speaks of Hercules (Lib. ix, 24); Juno (id.), and even Cupid (Lib. ix, 27) and the Graces (Lib. ix, 33), being represented by rough stones "according to ancient usage." Apollonius Rhodius II, 1172, speaks of a great sacred stone in the temple of Mars at Orchomenos, worshipped by the Amazons. The pre-Mahometan Arabians were especially stone-worshippers, Maximus Tyrius, who says he saw it, affirms their idol was only a square stone, whether hewn or rough is not clear. Suidas says they worshipped the planet Mars at Petra under that figure. The ancient Laplanders worshipped rough stones called Seiteh. The Israelites are warned against "setting up any image of stone in their land to bow down to it" (Levit. xxvi). The "image of stone" (Heb. Eben maskit; Septuagint, λίθος σκοπὸς; Vulgate, lapis insignis) may have been a rough stone pillar, perhaps a phallic emblem. Up to the 9th century A.D., there were several decrees of Councils and kings against popular stone-worship, evidently not of images, but of rude stones (saxa-lapides.) I think it not impossible one such stone may still be seen. In Devonshire, in the Chagford Valley, under the Kestor and the mysterious stone avenues, and not far below the meeting of the North and South Teign, there is a great stone, famous locally as the Puggie stone. It stands in a fairy-haunted spot above the wooded hollow down which the Teign rushes from the Dartmoor heights, and is a large rock-boulder 12 or 15 feet high, and little less in breadth. The outer side is plain, but on the inner side facing the river, there are natural rifts and hollows, so disposed as to give some idea of a gigantic human face, and grotesquely indicate eyebrows, nose, and mouth. On the top of the stone there is a large and regular rock-basin. Many stories cluster about the spot, and the name, Puggie Stone, is evidently derived from Pouke, the old term for a demon or evil spirit, whence too Puck. Cromlechs in the Channel Islands are still called "poukelayes." Possibly in prehistoric ages when the hut-dwellings, stone-circles and avenues on the Dartmoor above were inhabited and the scenes of unknown rites, this strange-looking stone may also have been worshipped, and regarded with an awe that reached far into Christian times, and is hardly yet extinct. The names of many places may also contain traces of stone-worship. In France

that at first the Egyptian temples were without images—ἀεῖδαναι. The Tipperah hill-tribes in Bengal, who now worship the Hindu gods, say that before the reign of the legendary king Trilochun, they worshipped no idols, but objects of nature, such as stones and trees; and amongst the Oraons, another Bengal forest-tribe, Chanda is the god of the chase always invoked before hunting. Any piece of rock, or stone, or excrescence on a rock, serves to represent this deity; for the Oraons must have something material to worship, and their most popular demon, Darha, is represented by a ploughshare set up on an altar.—(Col. Dalton).

several towns bear the name of Pierre Fiche, which means an unwrought tall stone—a menhir.

One source of the veneration paid to stones may have arisen from their use as land-marks or memorials of agreements—"stones of witness"—such as the pillar set up in witness of the compact made between Jacob and Laban, along with the heaps, in the passage of Genesis already quoted. Such, too, was the "Great stone" set up by Joshua under an oak before the Sanctuary of the Lord, "to be as witness unto us," and the Ebenezer stone set up by Samuel between Mizpeh and Shen. Herodotus relates that when two Arabians made a compact, they cut the inside of their hands with a sharp stone and rubbed the blood upon seven stones ranged between them. Amongst the Khasia hill-tribes of India, "when there was war between Cherria and Mausmai, they made peace, swore to it, and erected a stone as a witness."—Mausmai = Oath-stone. A promise made on the Odin-stone in the Orkneys was within living memory the most inviolable of engagements. On passing the Jordan 12 stones were set up in the midst of the river and 12 in Gilgal, as a memorial, by command of Joshua, and it is possible that "they are there unto this day." In Ramnad, Southern India, there are nine stones on the sea-shore, said to have been planted by Rama on his expedition to Ceylon to represent the planets, and worshipped by him; they are emblems of prosperity to the country; any of them breaking off or crumbling at the top is an omen of disaster. It is not difficult to conceive how stones placed for any of the purposes just enumerated would attract sentiments of awe and veneration.\* Oil would be poured upon them, and they would become anointed stones, such as may be seen to-day by every road-side in India.† Jacob both after his dream, and after he had talked with God, set up a stone and poured oil thereon. Theophrastus in his "Characteristics of a Superstitious Man," says, "if at crossings he should see an anointed stone, he falls upon his knees, pours oil upon it, and worships it." Lucian, too, in his "Pseudomantis," says of Ruti-

\* Such sentiments would be increased when, as would not unfrequently happen, magical or healing virtues became attributed to the stones. Geoffrey of Monmouth, in a well-known passage, tells a legend that when Aurelius consulted Merlin as to what monument should be raised to the Britons treacherously massacred by Hengist, the enchanter replied, "You would have the giant's dance brought from Ireland! Do not, Lord king, vainly excite laughter; those stones are magical, and virtuous in healing in many ways; giants brought them of old from furthest Africa; they heal sickness and cure wounds; every stone there has its own healing power." In France, even to-day, women are said to sit on dolmens to cure sterility. In the West of England, almost up to recent times, children were passed through holed stones for various diseases; and the Welsh Triads affirm that "on the stones of Gwiddon-Ganhebon one could read the arts and sciences of the world."

† This consecration by oil is in India termed Nivēdyam.

lianus, that he was an excellent man and of noted valour in war, but very superstitious in religious matters, so that if he saw an anointed stone anywhere he would fall down and adore and offer petitions to it. These passages show that rough stones were commonly venerated in classic times. In France to this day the inhabitants of the Haute-Loire are said to anoint with oil the "peyro martino" of Livernon (a dolmen figured in "Rude Stone Monuments," p. 347), as in ancient times. Anointing rocks and stones with oil turns them black, and this may be one reason for the particular veneration paid to *black* stones, as well as that being the usual colour of aerolites, the fall of which on a large scale is a startling phenomenon, certain to excite strong superstitious awe amongst all primitive and ignorant peoples.\* Captain R. J. Burton, after kissing and handling the famous Black Stone of Mecca, was convinced it is an aerolite, and so probably was the Phœnician Image of the Sun, called Elagabalom, which Herodian says was worshipped by all the neighbouring kings, and was a large black cone-shaped stone said to have fallen from the sky. It is curious that the Ayeen Akbari (Life and Deeds of the Emperor Akbar) mentions a pillar of black stone, 80 cubits high, as the most sacred object before the Temple of the Sun at Jaganâth, and the idol is described there by Captain Hamilton as a huge black pyramidal stone.† The ancients called aerolites *Boetylia*, and held them mythically to be the stones palmed upon Saturn by Rhea for his children, and vomited up by him. Hesiod in his Theogony mentions a famous sacred stone in Pytho under the heights of Parnassus, said to have been the stone palmed upon Saturn for Jupiter, and to have been planted in Pytho by the latter for a wonder to all men, probably some legend of a great meteorite. Other instances of black stone worship are the idol of the mysterious Siaposh in Central Asia, which Mr. Masson describes as "an erect image of black or dark coloured stone the size of a man." The Hermansäule of the Germans seems to have been in its earliest form a tall black stone. Captain J. Cope, who travelled through Western India in 1758, describes a ceremony he saw in "a certain grove on the coast of Canara, when several thousands of

\* In February, 1857, at noon, two aerolites fell in the district of Madura, Madras Presidency; they fell about three miles apart, with a tremendous reverberation like prolonged thunder, but much louder, that was heard at a distance of 40 miles; one weighed 37 lbs., the other was four times larger; they struck cultivated ground and buried themselves more than two feet in the earth: one of them is now in the British Museum. The natives in the neighbourhood, when they fell, dropped on their faces and remained long prostrate with fear; afterwards great crowds came and worshipped them. In some temples in Bengal the lingam-idol is said to be a meteoric stone.

† Antonio de Solis relates that a large black stone was placed before the idol on the pyramid of the great Mexican Sun-temple.



people assembled, and in the middle of the grove was placed a black stone of 300 or 400 lbs. weight, without any designed shape, but bedaubed with red lead mixed with oil. A little earthen pot of fire was placed before the stone, and a girl about ten years of age to attend it." This was probably Vetâl, an aboriginal Bhuta or Demon; his usual image is a rough pyramidal stone from 2 to 4 feet high, generally under a tree on the east side, and sometimes surrounded by a circle of stones which typify his retinue of attendant demons. It has been previously stated that the Râjmahal hill-tribes worship Raxi under the form of a black stone, and Col. Dalton (*Ethnology of Bengal*) reports that when a man-eating tiger infests the village, or a bad epidemic breaks out, Raxi has to be sought out, and with the aid of a priest or diviner, a black stone, which represents the god, is found, and set up under a large tree. Châl or Châlnâd is similarly sought when any calamity befalls a village, and he also is found as a black stone, and set up under a Mukmum tree.

At the present day the most sacred amulets among the Hindus are the Sâlagrams, black, smooth, water-worn ammonites brought from the Gandak river in the Himalaya, and carried all over India; they are held to typify Vishnu and all the gods. The shepherds of Languedoc are said to carry black stones pierced with holes as an amulet to preserve their flocks from the rot.

Indeed, rude stone worship exists to-day perhaps to an unsuspected extent. Mr. Masson relates that in the temple dedicated to the goddess at the foot of the Koh Assa Mahi (Hill of the Great Mother) near Cabul, "a huge stone is the object of adoration." Major Macpherson states that "a special deity of the Khonds is a stone without shape, and weighing about 75 lbs." Nadzu Pennu, the village god, and Koda Pennu, the horse god, are represented also simply by stones placed under a large tree. Southwards, in the Peninsula, a large proportion of the agricultural and forest castes represent their deities by rough stones. One instance is noteworthy as showing on what occasions, and how easily, a new god may be set up amongst a primitive people. The late Mr. Breeks in his "*Wild Tribes of the Nilagiri Hills*," relates that a few years ago the Kôtas, one of the tribes of the Nilagiri Hills, were visited by a virulent disease which carried off so many of them that the village was abandoned. As they are the ironsmiths of that region, their neighbours, the Badagas, probably found their absence inconvenient, and a Badaga passing one evening by the deserted village, received a mysterious communication from something in the shape of a tiger, that unless the Kôtas returned the disease would spread; so they returned. Now their only previous deities were Kâmatârâya and his wife, each represented by a thin silver plate, but now they set

up a new god, an upright stone, and called it Māgāli, whose special office was to protect them from the disease, which did not appear again; and every year since goats and fowls are sacrificed to Māgāli. It has been already mentioned how another tribe, the Irulas, worship Rangaswami under the figure of an upright stone in a circle on the easternmost Nilgiri peak; they too of late years have added another circle and stone to the old temple, and call the latter Great, and the former Little, Rangaswami. Lower on the mountain slopes the still wilder Kurumbas worship a rough round stone under the name of Hiria Deva, = Old God, setting it up either in a cave or irregular circle. I will add a few more instances of existing stone-worship in those provinces most familiar to me. In Mysore when a new village is founded, the principal Gowda, or head-man, places a large stone in or near the site, called Kūrūvu Kallu, or Calf-stone, this represents the tutelary village god, and receives annual worship and offerings. In the same province the Goālār, or herdsmen, have a small temple containing two shapeless stones termed Jinjappa and Rāmappa. The Beidāru, who are cultivators, worship a rude shapeless stone placed on a cairn, or sometimes in a cavity of a rock. The iron-miners have a deity named Mūti Rāya, = Pearl King, a shapeless stone placed in an open-sided dolmen about 6 feet square. Another caste that cultivates betel-leaf gardens has two deities, Sidday devāru, a stone set up in a betel-vine garden, and Urukāti, a stone placed in a wood.

In Malabar the goddess of the salt-makers is Nidamah Bhagavati, a stone placed in a cocoa-leaf hut; that of the Poliars, a degraded slave-caste, is Paradēvata, a rough stone placed on a mound in the open air. The goddess of the Pariahs is a stone placed in a small hut, called Māriti; and of the Kurumbālar, a stone named Madya dēvam, planted on a heap of pebbles. In Coimbatore the Pallies, a numerous caste, have two special deities, Mānār Swāmi and Pachamma, both large stones; the Maleiārāsar, = Hill-kings, commonly called Mul-sers, of the Anamalay and Paulghaut jungles, have a god named Mallang, who is a stone surrounded by a low wall, and the Kādērs, = forest men, who live in the depths of the forests, have a male god Mudevīran, and two female deities, Pey-kōti Amma and Kali Amma, all represented by rude stones placed in small huts. All these obscure deities receive bloody sacrifices, *i.e.*, offerings of fowls, goats, or sheep,\* but it must not

\* Mr. Horne, however, informed me that in Himalayan villages a stone is set up as a pillar in the centre, the top smeared with whitewash, and five finger-marks of red ochre laid on, and on this flowers are offered for the prosperity of the field.

be supposed that they absorb the worship of the several castes and tribes enumerated; many worship the ordinary Hindu gods as well. The instances just given are but from a very small part of India, and the list might doubtless be immensely increased, proving the wide prevalence of stone-worship there to-day. Mr. Hunter in his work "*Orissa*," vol. i, p. 95, observes of this two-fold worship, "At the present hour in every hamlet of Orissa the common people have their shapeless stone or block, which they adore with simple rites in the open air; while side by side with it is a temple to one of the Aryan gods, with its carved image and elaborate rites." So in the early ages in Europe, the rude stones of popular worship doubtless stood long by the first Christian churches. In our stage of intellectual advancement it is difficult to put ourselves in that mental posture which could directly and literally worship "stocks and stones." One may conceive how prayers and adoration might be offered to the statues that embodied the ideals of majesty, intellect, and beauty in old Greece, and imagine the stern unimpressionable Roman Consul shrinking abashed before the Zeus of Phidias, in Elis, exclaiming that he beheld God! We know how widely over Europe images are regarded with feelings approaching adoration, and can conceive how the hideous idols of the South Seas inspire a worship prompted by superstitious dread, but it does not seem so easy to comprehend how mere rude stones—shapeless masses and splinters of rock—could be taken to symbolise, or to be, a deity. Animals, terrible, useful or beautiful, trees, flowers, striking natural features, might suggest ideas of awe or veneration, and indeed vestiges thereof survive amongst civilised peoples, as well as amongst those tribes that most nearly represent the prehistoric races, who were presumably alive to the same influences. Still it is hard to think why dull lumps of stone and rock should be chosen as emblems of any supernatural power, yet the fact remains that a collection of lumps and splinters of stone by the wayside suffices for Hindu worship to-day, and might have sufficed for the men of the stone ages.\*

\* Another cause of stone-worship may be the influence of old legends. Amongst the feats of the god Siva, it is recorded that being angry with the six nurses of his son, Kartikeya, because they were careless in learning the eight forms of prayer, he laid on them a malediction "that they should become large stones under the Banyan tree near Madura, for 1,000 years." Whilst undergoing this penance, they were worshipped as evidences of the power of the god. Megaliths in Europe are often popularly held to be transformed men; *e.g.*, the Rollright-stones and the Cornish hurlers. Again, at the foot of a mountain in Travancore there stood a magnificent and gigantic timber tree: four men with outstretched arms could not compass its trunk. Several rude stones of no great size placed at its base had been worshipped from time immemorial and supposed to represent forest-gods who dwelt in its branches. It was the blood and ashes and other

There could be nothing in this of that nature-worship so largely developed in modern poetry and philosophy, of which Wordsworth has been the great hierophant. Neither living savages nor men of the flint days can be thought of as finding sermons in stones, or thoughts that lie too deep for tears in a flower or tree; and Kingsley's apostrophe—

I cannot tell what ye say, red rocks!  
I cannot tell what ye say,  
But I know that in you too a spirit doth dwell,  
And a word in you this day!

would be taken by them in a very different sense. Such ideas indeed are the latest result of culture; and to a higher plane of mental perception and reflection also would seem to belong that idea of generation, symbolised in so many ancient myths and religions by the pillar, spire, lingam, circle, cave, &c., of which rough stones might be the readiest emblems, and so become sacred.

Were any clue possible to the dark labyrinth of prehistoric thought, it might be looked for amongst the most secluded, uncultivated races, such as are described by the Rev. W. W. Gill ("Myths and Songs from the South Pacific"), in Mangaia, the most secluded of the Society Islands. One idea pervading Mangaiian mythology is that earthly objects are but the material bodies of spiritual powers or originals, so that if an axe cleaves or a club kills, it is because demons are invisibly present in them; and the idea extends to supposing that all ordinary inert objects have spiritual doubles, or ghosts.\* Thus when Indians bury a warrior with all his weapons, it is with the idea that the ghosts of the weapons may go with his to the Spirit-land. This helps us to conceive how tribes in India to-day can see deities in shapeless stones; so may it have been with men in the unknown prehistoric past, in whose graves, too, weapons are so frequently found, deposited perhaps with the same idea. Another

manure deposited there on sacrificial and festival occasions that had nourished and so wonderfully enlarged this colossal tree. The missionaries wished to purchase it for the erection of a large chapel at Neyur, and after obtaining permission, were obliged to call Christian workmen from a long distance to cut it down, all the mountaineers refusing to assist, and viewing its felling with great alarm from a distance. All the woodwork of the new chapel was made from this single tree, and the forest-people afterwards listened more readily to the preaching of the missionaries. An occurrence like this in recent years probably represents many similar passages in the early centuries of Christianity in Europe.

\* The idea underlying the primitive Vedic religion is that material objects have a spiritual as well as a physical potency, and may thence be addressed with prayer and hymns. So, too, Swedenborg's famous Doctrine of Correspondencies declares that all physical things are but the types of things existing in the spiritual world. Even so rude a people as the Karens of Chittagong, have an analogous idea; every object amongst them has its *kelah*, or genius; if the rice crop is unpromising, its *kelah* has to be invoked.

aspect of the same primeval way of thinking seems to exist in the Gātri, the most popular and universally observed festival, except one, in India. It is held in the beginning of September, when people of all castes and classes, from the Brahman to the Pariah, offer prayers and sacrifices to the tools and implements used in their several professions and crafts. Learned Brahmans and well educated clerks and officials put together their writing materials, paper or palm-leaves, pens, stylus, and ink; the merchant and bazaar man their account books and scales; the cultivator his plough, hoe, and harrow; the carpenter and smith their tools; the weaver his loom and shuttles; the tailor his needles, &c.; the barber his razors and hone; the women their baskets, rice-pounders, pots, and household implements, and placing flowers and incense, prostrate themselves at length before the objects of their daily use, with thanks for having afforded the means of living, and prayers that they will continue to do so. This worship is offered directly to the things themselves, and not to any deities symbolised,\* and seems to contain the germs of the South Sea theory, and suggest how worship can be paid to "stocks and stones," whether in prehistoric or present times. More than the men of Athens, the Hindoos are *δεισιδαιμονεστέροι* (Acts xvii, 22) in the true sense of greatly prone to recognise the presence of supernatural powers; and men versed in English literature, in law, and moral philosophy can roll up little balls of cow dung and clay, give them divine names, worship them, and toss them aside. This disposition may have begun far back in prehistoric times. Some have held that religious sentiment was then a blank, arguing from certain tribes among whom travellers have reported no appearance of religion existed, but it is always questionable whether they had penetrated all the modes of thought about them. That sentiment must have originated some time, perhaps not very long after passing from Darwin's tailed arboreal stage, and rough stones might have been, and continued to be, as now amongst so many primitive tribes, the readiest symbols of beings imagined out of themselves. Sir John Lubbock ("Origin of Civilisation," p. 205) thinks that stone-worship is "merely a form of that indiscriminate worship which characterises the human mind in a particular phase of development." This, however, hardly explains why rough stones should be so generally selected amongst all natural objects for adoration, but all Sir John Lubbock's pages on the worship of stones demand the highest consideration.

Before quitting this subject, a word may in conclusion be said upon that oldest of historic rough stones now in our midst—that

\* There are also two ceremonies conducted by women, in which metal and earthen vessels are converted into gods, and worshipped as such.



Stone of Destiny brought in days beyond the ken of history from Spain to Ireland as a talisman of national welfare. On it the ancient Irish Kings were crowned, when, if on being smitten it sent forth a clear ringing sound, the ceremony was auspicious. Carried to Scotland, it was long the palladium with which national independence was bound up, and brought thence in triumph, as the most certain token of victory it has for six hundred years rested beneath the Coronation chair at Westminster. The consideration and sacredness attaching to this famous stone in its various shrines and changes are almost a measure of the survival of stone-worship in the West. Were it lost or dragged from its present sanctuary, there would not be the same wide popular dismay that followed its last removals, but I think few here present would not experience a feeling deeper than simple antiquarian regret.

#### DISCUSSION.

The PRESIDENT observed that researches such as those of Mr. Walhouse on megalithic structures and stone worship of modern times were well calculated to throw light on the monuments and religious practices of far earlier times. He was inclined to think that some of the stones which were the subject of veneration at a remote date might have been of meteoric origin. The so-called "image" which fell down from Jupiter and jointly with Diana, was the subject of worship at Ephesus, might well have been a meteorite. He thought that the sites of many Christian churches had been determined by the spot where they were erected being already deemed sacred; and the large blocks of stone which were built into the wall of the church as at Le Mans, or lay just outside it as at Trèves, or were still erect in the close vicinity as at Rudstone in Yorkshire, might perhaps be the original rude stone idols which had hallowed the sites.

Mr. HYDE CLARKE said Mr. Walhouse had made a reference which was perhaps connected with a prehistoric belief which must have been widely distributed. In the Guarani language of Brazil and Paraguay there were separate words for what had life or soul, and what was dead. Thus a distinction was made between the head of a living and of a dead man or animal, and so throughout. Stones would receive worship on two grounds: first, divine stones or meteorites falling from heaven; second, stones as being representatives of natural organs. Mr. Walhouse had well illustrated the parallels between the stone gods of Greece and India. On examining Mr. Ferguson's stone monuments, he had been surprised to find the small evidence of astronomical or symbolical numbers, and this he considered was consequent on the paucity of our recorded information on the subject.

Mr. LEWIS thought a distinction should be drawn between such alignments of stones as those of Carnac and Ashdown Park, and

mere double lines or avenues, such as exist on Dartmoor and elsewhere. Sacrifices were offered before lines of stones in Southern India, and similar lines were erected as memorials in Northern India, and they might therefore suppose that the European allignments were erected for either purpose, as there was every reason to believe that they were not sepulchral. The two slabs with one across forming a shrine or canopy for an image appeared to resemble Kit's Coty House without the central stone, which occupied the place of the image, and it had often struck him that that stone being rougher than those which surrounded and covered it, might have been held in greater respect. The direction to the Jews not to hew the stones used for their altar was well known, and the same idea might have prevailed elsewhere. There were several instances of non-sepulchral dolmens in England besides those mentioned by Mr. Walhouse, and three upright stones, arranged like those of Kit's Coty House, but without a capstone, were found in connection with some of the larger circles. Referring to the black stones pierced with holes mentioned by Mr. Walhouse, Mr. Lewis said some people in England still preserved stones with naturally formed holes, and called them lucky stones; and referring to some remarks by Colonel Lane Fox, he thought he had recently seen it stated that the custom of attaching pieces of rag to certain objects prevailed in Russia. He thought Mr. Walhouse's paper a most useful one, and that the information about the dolmens used as repositories for sacred objects was particularly valuable.

Mr. MOGGRIDGE said, I could have wished to have gone more fully into the subjects treated of in the very able paper which has just been read, and the remarks that have been made thereon; but will confine myself to two points—1st, the hanging of rags on bushes near to some spring or shrine supposed to be of potent power. These I believe to be votive offerings, testifying gratitude for cures whereby those rags were no longer required for dressing the parts affected. This custom prevails extensively, not only in England and Wales, but also on the continent, even down to the shores of the Mediterranean.—2ndly, upright stones. These, whether monumental or not, frequently became objects of worship. On some of them may be seen the figure of a cross, cut by the early Christians, in order that the heathens, while paying their accustomed adoration to the *maenhir*, might, in fact, be worshipping the symbol of our faith: a pious fraud—but manifesting a kindly feeling.

Mr. WALHOUSE in answer to the President expressed his opinion that the red marks often placed in India on sacred stones were analogous to the caste marks on the foreheads of Hindus. Every one amongst them must have some mark on his forehead. To have it bare is a sign of being in mourning or unclean, and it is disrespectful to appear so in company. Hence all images of the gods have the forehead carefully adorned with caste-marks, and the custom is extended to daubing stones, or anything sacred, with red. Colonel Forbes Leslie, however (*Early Races of Scotland*, ii, 464),

thinks the red marks are intended to represent blood. The author, with respect to tying rags to a bush at a spot where a man had been killed by wild beasts, said he had only met with two or three instances, and believed that the rags were tied to a bush in lieu of stones added to the stone-heap raised at first, after loose stones had become scarce around. In answer to Mr. Lewis, he said that he remembered no outlying stone near the circle described by him on the Nilgiri Hills, but there is a smaller circle at a short distance on the eastern side.

Col. Lane Fox, Mr. Jeremiah and others offered some remarks.

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Major Wisden exhibited some bronze antiquities lately discovered in the neighbourhood of Worthing, consisting of palstaves, socket-celts, and pieces of metal. The palstaves, 29 in number, were looped, and those exhibited were without ornamentation on the blades, and in form much like Evans's *Petit Album*, Pl. IV, No. 3. The socket-celts, 12 in number, were of the type Pl. V, No. 2, and the metal had been cast in cakes, which had subsequently been broken into pieces. The whole had been buried in an urn of burnt clay intermixed with coarse sand, or possibly flint, which had been pounded into small angular fragments. The urn was too much broken for its shape to be recognisable.

The President remarked that the objects probably belonged to the close of the bronze period in this country.

The meeting then separated.

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MARCH 13TH, 1877.

JOHN EVANS, Esq., F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same:—

FOR THE LIBRARY.

From the SOCIETY.—*Proceedings of the Royal Society.* Vol. XXV, No. 177.

From the SOCIETY.—*Jahrbuch der K. K. Geologischen Reichsanstalt.* Vol. XXVI, No. No. 4; *Verhandlungen der K. K. Geologischen Reichsanstalt.* Nos. 14—16.

From the SOCIETY.—*Mittheilungen der Anthropologischen Gesellschaft in Wien.* Vol. VI, Nos. 6—10.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland. Vol. IV, No. 28.

From JOHN EVANS, Esq., F.R.S.—Through Bosnia and the Herzegovina on foot during the Insurrection. By A. J. Evans, B.A., F.S.A.

Petit Album de l'Age du Bronze en Grande Bretagne. By John Evans, F.R.S.

From the SOCIETY.—Proceedings of the Royal Geographical Society.

From the EDITOR.—Revue Scientifique. Nos. 36 and 37, 1876.

From the AUTHOR.—Smoking. By Dr. J. C. Murray.

From the EDITOR.—Nature (to date).

The President exhibited a bronze socket celt from Italy of the usual form, but still retaining its original wooden handle, which had been preserved in consequence of its having been completely covered with thin plates of bronze. The entire length of the handle is about 10 inches. It is somewhat curved, and the projecting branch, which goes into the socket of the celt, forms an angle with the handle of about 80°. At the end of the handle is a small loop, as if for the insertion of a ring or string by which to suspend it. The wood appears to be oak. This hatchet, with another like it, was found in an urn at Chiusi, with a long fibula of silver, a scarabæus, and several bronze plates, each with a "fylfot" cross upon it, and probably forming part of a girdle. These are now in the Etruscan Museum at Florence.

Captain DILLON exhibited some flint arrow heads, tools, &c., from Ditchley, Oxon.

The President made some observations on them.

Thanks were returned to the exhibitors of the above.

Mr. HYDE CLARKE then read a paper on the Himalayan Origin of the Magyars.

HIMALAYAN ORIGIN *and* CONNECTION *of the* MAGYAR *and* UGRIAN. By HYDE CLARKE, Vice-President of the Anthropological Institute.

THE Ugrian languages have become of the more importance in the advance of comparative philology on account of the relations between them and the Akkad or Sumerian cuneiform developed by Norris, Oppert, Lenormant, Sayce, Sayous, &c.

My opinion still is that the relationship is less between Akkad and Ugrian, strictly speaking, than among Akkad, Ugrian, and many other prehistoric languages. The order to which the

Akkad more immediately belongs has been named by me Sumerian or Khita-Peruvian, and is dealt with in my work on Pre-historic and Comparative Philology, and in my last book on Khita and Khita-Peruvian.\* More or less belonging to this order are Etruscan, Lydian, Phrygian, the Georgian, many languages of the Indo-Chinese peninsula, the Aymara and Quichua of Peru, the Maya of Yucatan. The Circassian and languages of Northern Mexico are in relation with this class.

The determination of the philological and historical relations of Ugrian is, it will be seen, a problem of considerable interest.

In this respect the object of the present paper is to propose an extension of the area of Ugrian, in districts the more attractive to the anthropologist, because they embrace High Asia and the Himalayas.

Thus the Ugrian languages are brought in contact with one great centre, which is by some regarded as the centre of the human race and the cradle of civilization,† but to my mind it is only one of several centres from which the migrations of the human race have taken place, as detailed in my Comparative Philology.

If the Ugrian languages include the cultivated Magyar and the epic Fin, yet they also embrace those of some of the lowest tribes of Samoyeds, Ostiaks, and Lapps. This is one reason which leads me greatly to hesitate before assigning to the Ugrian the Akkad, as Lenormant is so strongly inclined to do, or the Etruscan, as the Rev. Isaac Taylor latterly suggested.

In India, as within the Arctic Circle, the Ugrian order is found in close contact and relation with languages which are those of savages, and are prehistoric.

There the relations of the Ugrian order are with the order which includes East Nepaul, and the languages round to the Assam border (and, indeed, to Arracan see Forbes), and including some scattered languages, the Bodo, Borro, Dhimal, and Kachari and the Abor and Sibsagur Miri.

The true Ugrian of this region constitutes a Ugro-Nepaulese class, which may be that of a possible Tibeto-Ugrian sub-kingdom.

The Ugrian order, as here considered, includes the following families :—

Samoyed,  
Ostiak,  
Magyar,

\* See also, "On Khita, Canaanite, Sumerian, Etruscan, &c.," by me in Transactions of the Royal Historical Society for this year.

† See the various works of Ernest von Bunsen for the latest developments of this system.

Mordwin and Cheremis,  
 Votiak,  
 Finnic,  
 Lap.

The chief Himalayan congeners are in East Nepal.

These languages are classed by Mr. Bryan Hodgson as the Kiranti group, but the most distinct member is the Chourasya. In Dr. W. W. Hunter's *Non-Aryan Dictionary* they are thrown together under East Nepal, and this which is also under Mr. Hodgson's auspices is very convenient.

In East Nepal are—

Rodong,  
 Rungchenbung,  
 Chhingtangya,  
 Nachhering,  
 Waling,  
 Yakha.  
 Chourasya,  
 Kulungya,  
 Thulungya,  
 Bahinga,  
 Lohorong,  
 Lambichhong,  
 Balali,  
 Sangpang,  
 Dumi,  
 Khaling,  
 Dungmali,  
 Kiranti.

On the Chinese frontier and Tibet are languages which more or less assimilate, but are of weaker affinities for the Ugrian than those of East Nepal—

Takpa,  
 Manyak.

In Nepal (east to west) are others in the same condition—

Sunwar,  
 Gurung,  
 Moormi,  
 Magar,  
 Newar.

Among the Broken Tribes of Nepal the language which most assimilates, but not uniformly, is—

Vayu.



Among the languages of north-east Nepaul are some which present an approximation, but are not of the same class. They include the prehistoric—

Bodo,  
Borro,  
Kachari,  
Dhimal.

On the eastern frontier of Nepaul are the languages of the Miri, more distant in their relation—

Abor,  
Sibsagur.

For Arracan, see the Appendix.

The affinities of the Magyar and Fin are strongest for the languages of East Nepaul, and those of Samoyed and Ostiak strongest for the lower tribes of the Bodo and Miri—a feature well worthy of the attention of the anthropologist and the philologist, more particularly because in physical characters the Laps and Samoyeds present diversities from the Fins and Magyars, and the Laps may be regarded as having acquired a Ugrian language after conquest. In this as in other cases the influence of the development of culture is more persistent than the physical influence of race.

The Vayu have a tradition that their people were anciently of very great importance (Hodgson).

In consequence of the prehistoric affinities disclosed, it has appeared to me useful to carry out a wider geographical investigation.

The Bodo, the Garo, the Dhimal, if they present some features identical with Finnic, contain more words of affinity with the African languages. In truth, however, the whole of the Himalayan languages present these marks of affinity, as do what are called the Altaic languages, and also the Javanese.

The relations between the languages of India and Ind-China and those of Africa will, however be dealt with in detail on another occasion. It suffices to say that there is nothing in the African languages opposed to the possibility of a centre of human culture in the Himalayas. The varieties of the Himalayan languages are partly dependent on these African features, and it is more than possible that ruder tribes have been absorbed by more advanced Himalayans, conformably to what has taken place in the Caucasus, and apparently in northernmost Europe and Asia.

On the other hand the Basques and their Caucasian kinsmen

of allied speech, the Lesghians, and who are white, use languages still chiefly spoken by black races in Africa and India.\*

In Africa there are strong vestiges of conformity of type with the Himalayo-Ugrian, particularly as to the roots for sun and fire, but unless the languages of the Gaboon should furnish further evidences of conformity, there is no evidence of identity.

The following languages of the Gaboon are to be named:—

Bayou.  
Pati.  
Kum.  
Bagba.  
Balu.  
Bamon.  
Ngoala.  
Momenyah.  
Papiah.  
Puram.

The following are examples, and these can be multiplied.

Sun	..	..	nyam.
Fire	..	..	mu, mo.
Water	..	..	usi, uzi.
Tooth	..	..	sou, aso.
Mouth	..	..	naso.

It may be observed that many tribal names are common to the two regions of India and of Africa. Then much of what is said as to language applies of necessity to mythology.

Among the American languages I have not been able to identify any congener of the Ugrian, saving the question of the Akkad.

The few roots which appear to conform are probably derived from the earlier stocks of languages, from which the Ugro-Nepaul languages have themselves been developed.

Even with regard to the Vasco-Kolarian languages, I am still in the same position. There is, however, in many North American languages sufficient to indicate their common descent from the prehistoric stocks, but while I can identify in America Agaw congeners, I cannot determine those of Vasco-Kolarian and Ugrian. This appears unlikely to represent the real facts, because, taking into account the position of these two families in Europe, Asia, and Africa, it appears unlikely they did not send migrations into the other hemisphere, when the migrations of the Agaws and of the later Sumerians are so distinctly marked.

On the other hand there is no decided Ugrian language in

\* See further on, and also "Prehistoric Comparative Philology," p. 1.

Africa, and there are many appearances that the Ugrian migrations in western Asia and Europe have been comparatively late, and also that they may have proceeded from Central Asia north and west.

As one object of this paper is to illustrate the subject of these migrations as affecting the Magyars, it will be well to consider this specific question.

The points of identity between Ugrian and East Nepaulese are in some cases striking.

The sun, day, and sky names :—

Nap, Ugrian .. .. Nam, Nepaul.

The names for man present repetitions of three types.

The words for eye illustrate each other, and the root appears to be a double one, with the syllables interchanged in each order.

Four types for mouth are to be recognised.

There are also four types of foot in contact.

A curious interchange of the types for bone and horn, in conformity with a practice of prehistoric philology or morphology, serves to earmark the order.

Horn, sarwi, Finnic.

Bone, sarwa, E. Nepaul.

Wa, the type for water, is general in the Nepaul and Ugrian orders, but it is part of a double root, chu-wa or we-si (= wa-chu).

Earth has two types.

River has three types.

Mountain shows four types.

Stone in the form kawa, or kiwi, reduced to kwa and ko, also is found in both orders, and the other element of the double root is also recognisable.

Village has a common form.

House has also a common form, even amongst the rudest tribes.

Tree, leaf, and flower show each one type for recognition.

Salt and iron have allied forms.

The adjectives show many cases of similarity.

The numerals, although of common origin in system, show great discrepancies in the Himalayan orders, so that the separation might have taken place at an early period, and before the numbers were fixed, unless, as is equally possible, the main Ugrians derived their numbers, as is frequently found to be the case with regard to numerals, from some other race, under the influence of commerce or conquest.

In general the roots in the orders are double, and are of course liable to separation and distribution.

There is a general connection of the Ugro-Nepaul class with the Tibetan, and consequently with the Chinese and Indo-Chinese. It appears most likely that any influence of Tibetan on the Nepaul and other frontier orders has been posterior to the epoch of migration and separation, but the whole matter needs investigation in connection with Akkad and prehistoric inquiries. In the present state of our knowledge it is not yet possible to fix the prehistoric chronology, and as yet great obscurity rests on the true relations of Chinese, though so many scholars are now applying themselves to that language.

In this day we find three masses of the Ugrian class:—

The Nepaul or Himalayan.

The main Ugrian, reaching from Siberia to the Black Sea, and thence to Lapland and the Icy Ocean.

The Magyar in Hungary.

The Magyar has been apparently divided from the main Ugrian by the Slavonic migrations.

The main Ugrian body may have extended further westward, but must have been checked by the Celtic migrations, and particularly by the Germanic invasion, which drove it towards the north in Scandinavia.

There is little likelihood that there was any extension to the eastward or towards America. The races on that side are all earlier.

The consolidation of a Tibetan kingdom and of a Chinese kingdom would keep them off from the east, and perhaps was the operative cause of the separation of the northern Ugrians from the southern or main stock.

The rise of the Manchoos, as Scythians, of the Mughals (Mongols), would tend to perpetuate the separation and to prevent intercourse.

With regard to the southern border in India, the present narrow strip suggests that there might have been a southern extension, but when we consider the various races, anterior and subsequent, which have possessed India, the possibility of a Ugrian empire of India is diminished.

There were the Minkopies, the Agaws, the Kols, and Dravidians, and the Sumerians. Of these we have testimonies in India, but of the Ugrians none, though this negative evidence is no more conclusive than the negative evidence is conclusive as to the various races which evidently from time to time occupied these islands.

The relations of the Ugro-Nepaulese class have naturally come under the attention of philologists, and hence have arisen the

opinions as to a connection of the Ugrian with the Dravidian languages, and the formation of a Sub-Dravidian family. The valuable labours of Mr. Hodgson not only yielded the materials for the several Himalayan vocabularies, but led him in illustration of the affinities, to bring forward a mass of connections with other languages, including the so-called Turanian, which have provided material for the determination of the comparative grammar.\*

The apparent and real affinities of Dravidian are chiefly dependent on the action of the same original causes on the languages, but these constitute no real connection. There is a distribution of roots under circumstances arising from culture or mythology, which affords no necessary proof of community of relationship of languages. There are the same influences affecting grammar, which forbid the assertion of identity of genealogy. Bishop Caldwell, in his new edition of the Dravidian grammar, does not appear to be desirous of annexing the Himalayan languages.

M. Lenormant, in his last work, "*La Langue Primitive de la Chaldée*, 1875," in various places, and particularly at p. 302, has, on the authority of M. Sayous, a learned author on Ugrian subjects, given many illustrations of what he has been led to believe are Ugrian affinities of Akkad.

A very cursory consideration by any competent prehistoric student is sufficient to show that they are as much prehistoric as they are Ugrian, unless they become Ugrian by their Himalayan relatives.

Akkad gud, *repose*. Compare gititea, *Kolarian*, gotolu, *Kassans*, Africa.

Akkad dama, *sleep*; dohomu, *Khond*.

Akkad sár, *line, row = straight*; sorichai, *Chentsu*; sirengi, *Bassa* (Africa).

Akkad mi, *dark, night*; ama, *Garó*, night; ami, *Burman*, do.; amma, *Kol*, do.; ma, *Chentsu*, do.

Akkad aria, *river*; garra, *Kolarian*; ngare, *Wolof*; kuramina, *Houssa*; kungoru, *Gadaba, India*.

Akkad dib, *dub, leaf*; lhaba, *Dhimal*; lapa, *Singpho*.

Akkad us, *blood*; azu, *Naga*; esi, *Bali*; kesu, *Rajmahali*.

Akkad lum, *bone*; elume, *Karnatika*.

Akkad du, *mouth*, is prehistoric.

Akkad khar, *ox*; karra, *Kolurian*, buffalo; goru, *Miri*, cow.

Akkad kisim, *ant*; gusala, *Gadaba, India*.

Akkad gum, *man*; kumi, *Kumi*; kame, *Soso* (Africa).

\* See the republication of Mr. Hodgson's *Himalayan Researches* by Messrs. Trübner.

Akkad mulu, *man* ; male, *Rajmahali*.

Akkad nene, *mother* ; nana, *Miri* (a common prehistoric type).

Akkad unu, *dwelling* ; nu, *Bodo* ; hun, *Khamti*.

Akkad uru, *town* ; uru, *Kolarian and African*.

Akkad akku, *very great* ; okoko, *Egbele, Africa*.

Akkad kir, *speech* ; kurr, *Thochu*.

Akkad gan, *stand* ; ginna, *West Africa*.

Akkad gam, *crooked* ; kom, *Naga Laos* ; a common Himalayan word, also prehistoric.

It is a remarkable circumstance that a zealous Magyar, Coros de Csoma, should have devoted himself to the mission of discovering the origin of his people in the Himalayas. The time he spent in Tibetan studies brought him no fruits, but had his life been spared he would have found in East Nepaul the evidences he sought, and which, with his knowledge and learning, would have been turned to good account. He lies buried in the town of Darjeeling, amid the original lands of the Magyars and the Ugrians.

Among the tribes of Nepaul are to be counted the Magar, and it is quite within the compass of possibility that this is the true origin of Magyar or Madjyar. At all events there are many words alike in the two languages. Several tribal names have descended from prehistoric times, as that of the Agaw or Agua.

It is to be remarked that although some words are preserved in Magar and Magyar, yet, as might be expected, there are words better preserved in the tribes near the Magar.

The following are examples of words in Magar and Magyar :—

	Mágar.	Magyar.
Sun	nam	nap
Day	namsin	nap
Mountain	danda	domb
Leaf	lha	levél
River	folyam	khola
Salt	cha	só
Hair	chham	hajak
Dog	chhyu	kutya
Goat	rha	kaüris
Bitter	khache	keseru
Crooked	gumche	görbe
Good	gyepche	jó
Handsome	shecheja	szép
Sweet	jyuchó	édes
White	bocho	fehér
I	gna	én
He	hos	ő



	Magar.	Magyar.
Who, what ?	hi	ki
This	isene	ez
That	osene	az
Near	khwep	közol
Where ?	kulak	hol
Within	bhitar	be

Dr. Duka has pointed out to me a singular prehistoric peculiarity (see Sir J. Lubbock on relationship, *passim*) which affects Magyar, Magar, and Limbu, and that is the possession of the terms for elder and younger brother and sister:—

	Magyar.	Magar.	Limbu.
Elder brother ....	batya	dajee	phua
Younger brother..	öcses (ötsch)	bhai	nusãa
Elder sister.....	nene	dai	anna
Younger sister ..	hug	banai	nusãa pakwa

It will be noticed that the Magar word for younger brother is borrowed from Hindustan.

It is to be noted that the Hung, a branch of the Limbu (Prof. Friedrich Muller, on "Man," p. 352, Vienna, 1874), near the Magar tribe, may be the Huns, who took part in the invasion of Pannonia, and gave name to Hungary.

Mr. Howorth, who has dealt largely with the tribes of Asia, has entered on the question of the Khunzag of Caucasia, being the original of the Huns of Hungary, and this he has treated of in the Journal of the Anthropological Institute for 1874, p. 453; and at p. 472 will be found my own observations on this subject. The unfortunate Klaproth was one of those who first called attention to the Khunzag, as he was first in many researches. Among the Lesghians, Awars, and Khunzag of the Caucasus he detected undoubted proofs of the connection of language in the names of the chiefs.

The Lesghian languages are, however, not Ugrian, but according to my classification belong to another order, the Vasco-Kolarian, their affinities being with the Basque, Kol, of India, Houssa, of Africa. (See my "Prehistoric Comparative Philology," p. 13.)

Dr. Leitner, distinguished as a scholar on Magyar as on other subjects, in his treatment of Dardistan, has pointed out the importance of considering the tribe of the Hunza as possibly connected with the Huns, as founders of the Hungarian nation. It would be nothing inconsistent with the other facts here brought forward, that Hun tribes should be found in the Dardistan, though at present speaking an Aryan language. In fact we have to observe that the Avar language has been lost in Hungary.

My explanation of the invasion of Hungary is that in the Ugrian emigration from the Himalayas, Ugrian Huns had entered Caucasia.

It is to be noted that Brian Hodgson enumerates as a tribe of Magar, in Nepaul, the Kyapchaki. This may have given name to the well known Tartar kingdom, and become associated with Lesghian tribes in joint expeditions. The chiefs were perhaps Lesghians, and the main body of the soldiery Ugrian, recruited from various tribes. On the occupation of Hungary the Lesghian chiefs gradually died off, and the language of the majority prevailed. This will account for the union of Avars in the invasion and Huns, and for the people and language being now called Magyar.

The phenomena would then be correspondent to those of the invasion and occupation of Britain by the English.

If this view be correct, it opens up the subject of the Lesghians, for, if these of old represented a warlike population, then they may have been connected with those movements to which the name of Pelasgian has been given, and which, it is supposed, led to settlements in many countries of the Asiatic and European Mediterranean. (See my "Prehistoric Comparative Philology," p 12.)

Whether in the Himalayas or in Caucasia the tribes referred to, it may be pointed out, are warlike. The foundation and maintenance of the kingdom of Nepul and the invasion of India sufficiently prove this. Such, too, were the assailants of the Roman empire, and the occupants of Pannonia, and such are the present inhabitants of Hungary.

I am indebted for corrections to Hungarian gentlemen, Dr. Leitner Bey, of the Lahore College; Mr. Bela Solymos; Dr. Duka, late of Darjeeling; and Captain Stab, Chargé d'Affaires of Guatemala, in Turkey.

## APPENDIX.

### COMPARATIVE VOCABULARY.

#### UGRO HIMALAYAN.

Sun, nap, Magyar. [numgy, Samoyed, Star]. nai Ostiak.	nam, in E. Nepaul.
„ kuya, Samoyed. „ [kunder, Finnic, moon].	nyima Tibetan. chhowa, Nepaul.

Sun, syunk Vogul. shunda, Votiak.	shan, Bodo. [songger, E. Nepaul]. san, Garo. sangdong, Kachari. hwan, E. Nepaul. nam, E. Nepaul. numa, Vayu. khola, E. Nepaul. [wujgalo, E. Nepaul, [light]. [jal, Pahari, light]. khlye, Chourasya, E. Nepaul. lya, la, E. Nepaul. ali, Dhimal. nokhabir, Bodo. nakhaber, Kachari.
" [kundom, Finnic, moon]. Day, nap, Magyar.	
" yeke, Samoyed.	
Moon, kuli, Koibal. " ilio, Samoyed.	
" yonkop, Vogul. kov, Mordwin. kou, Fin. kundoma, Fin.	
Light, walo, Finnic. " vilag, Magyar.	wujyale, E. Nepaul. jalo, Pahari. nunggi, Pahari. nam, E. Nepaul. dwam, E. Nepaul.
Star, numgoy, Samoyed.	
Sky, [nap, Magyar, sun]. " nuont, Samoyed taiwas, Fin. "	
Fire, tuli, Finnic.	domur, Miri. [tali, Dhimal, moon] has } E. Nepaul. hash } hiwa, Bodo.
Man, hassawa, Samoyed.	
" huweri "	
" kasa "	
" keiza "	
" ihmene, Finnic. ingemin "	mana } E. Nepaul. mina }
" innemine, Ostiak. mies, Finnic.	
Eye, saeu, Samoyed. silme, Finnic. sin, Votiak. shinsha, Cheremiz. szem, Finnic. sima, Samoyed.	mis, E. Nepaul. visi, E. Nepaul. miksi " miksa "
	michi, E. Nepaul. mas, " mash " gnalu, E. Nepaul. ipang, Miri. syau, E. Nepaul. si " khouga, Bodo.
Tooth, all, Magyar.	
" penk, Ostiak.	
Mouth, szaj, Magyar. su Fin.	
" kaukasi, Finnic.	

Mouth, khurgo, Mordwin.	kuga, Kachari.
„ na, Samoyed.	igno, E. Nepaul.
	gnocho.
	nui, Dhimal.
	napang, Miri.
„ agma, Samoyed.	kwom, E. Nepaul.
„ wan, Sirianian.	
Hair, bukka, Karelian.	tagna, E. Nepaul.
	[tuku, Miri, head].
	[taklo, E. Nepaul].
Head, paa, Finnic.	piya, E. Nepaul.
	bui.
	phutiri.
	puring, Dhimal.
Hand, kasi, Finn.	khar, E. Nepaul.
	khar, Dhimal.
kes, Magyar.	akhai, Bodo.
Foot, lat, Vogul.	lang, E. Nepaul.
lab, Magyar.	chaplap, Garo.
„ kok, Siranian.	khokhoi, Dhimal.
„ pilge, Mordwin.	philu, E. Nepaul.
„ yalka, Fin.	syal, E. Nepaul.
Blood, hem, Samoyed.	hi, E. Nepaul.
ki, „	chi, „
Skin, nakha, Finnic.	hokwa, E. Nepaul.
	kwakte „
	umhokwa „
bor, Magyar.	bigur, Bodo.
Bone, czontak, Magyar.	singga, E. Nepaul.
	usangga.
	sing, Kooch.
Horn, sarwi, Finnic.	[sarwa, E. Nepaul, bone].
szarv, Magyar.	[saruwa „ „
	[sarukwa „ „
	[harwa, Kooch „
	[hara, Dhimal „
Egg, toyas, Magyar.	dai, E. Nepaul.
	ti „
	tui, Dhimal.
	touchi, Garo.
	daudai, Bodo.
Water, wut, Cheremis.	wa, E. Nepaul.
vit, Vogul.	
bu, Samoyed.	
be, „	
wit, „	

Water, wa, Permian.  
 wesi, Finnic.  
 viz, Magyar.

River, yoha, Samoyed.

" as, Ostiak.  
 " kymi, Finnic.

Earth, ya, Samoyed.  
 da

" maa, Finnic.  
 " ma, Samoyed.  
 " mou, "

Mountain, hegy, Magyar.

" domb, Magyar.  
 " sea, Samoyed.

" wuori, Finnic.  
 " bor, Samoyed.

Stone, kiwi, Finnic.  
 " ko, Magyar.  
 " tang, Samoyed.

Eat, syon, Finnic.  
 en, Magyar.

Laugh, nauran, Finnic.

" nevet, Magyar.  
 Mouse. yar, Magyar.

Be silent, waikenen, Finnic.

Speak, sanon, Finnic.

assi, Miri.

yowa, E. Nepaul.  
 yo.

asie, Miri.  
 koma, E. Nepaul.  
 kwama.

kawa.  
 daima, Kachari.  
 ha, Bodo.

Garó.  
 Kachari.  
 among, Miri.

hajo, Bodo.

" Kachari.  
 hachur, Garó.  
 danda, E. Nepaul.  
 sani, E. Nepaul.

sanggu, "  
 bhuri, E. Nepaul.  
 bhar, E. Nepaul.  
 bour, "

bro, "  
 kawa, E. Nepaul.  
 kwa.

lung, "  
 long, Garó.  
 chanin, E. Nepaul.  
 cho.

jyuye.  
 rende, E. Nepaul.  
 riya.

risini.  
 navir, Manyak.  
 daran, Thochu.

enna, Sokpa.  
 biya, E. Nepaul.  
 bege, Limbu.

yay, Gurung.  
 waitwaya, E. Nepaul.  
 wayeb.

nēna, E. Nepaul.  
 sogno.



Drink, juon, Finnic. in, Magyar	dung, E. Nepaul. dugna. tune. syanga, Brahm. toin, Pahari. payam, E. Nepaul. bhanso. bini, Murmi. banyar, Manyak. tingni, Garo. dinesanche, Kachari. tanna, Nowgong. dinimeni, Deoria Chutia. thang-waynan, Talain. mangkokn, E. Nepaul. hamaye. minthe, Gyami. kallu, Darhi. kalla, Pahari. Kuswur. Tharo. ganap, Garo. ninap, Namsung. tel, E. Nepaul. tyal, " del, " kyl, " dulong, Miri. [falan, Manchoo]. khim, E. Nepaul. kam, " ekum, Miri. puwa, E. Nepaul. pu, " laba, E. Nepaul. laphowa, " lhava, Dhimal. puri, E. Nepaul. parr, Garo. yoksi, E. Nepaul. syang, Garo.
To-day, tanapana, Finnic.	
To-morrow, huomenna, Finnic.	
kolnap, Magyar.	
Village, falu, Magyar. kyla, Finnic.	
House, kamodo, Samoyed. muat, " mait " kat, Ostiak.	
Tree, puu, Finnic. pa, Magyar. pea, Samoyed.	
Leaf, level, Magyar.	
Flower, virag, Magyar.	
Salt, soak, Samoyed. si suol, Finnic. so, Magyar.	
Iron, yese, Samoyed.	sel, E. Nepaul.

Goat, kauris, Finnic.

Mosquito, szunyog, Magyar.

Hunger, ehseg, Magyar.

1, Ostiak, egy.

Magyar, egy.

Cheremis, iktit.

Finnic, ak, yks.

Lap, akt.

2, Karelian, kaks.

3, Ostiak, kholym.

Magyar, harom.

4, Finnic, nelya.

Magyar, negy.

6, Finnic, kuusi.

Ostiak, kut.

7, Finnic, seitseman.

Cheremis, shimit.

sini.

Mordwin, sisem.

8, Magyar, nyolc.

10, Finnic, kymmenen.

Mordwin, kamen.

20, Magyar, husz.

40, Magyar, negyven.

Bitter, Finnic, haikia.

Magyar, keseru.

gara, E. Nepaul.

sagoli, Miri.

songgon, Miri.

sago, E. Nepaul.

saka.

eukta, E. Nepaul.

itto.

aktai.

ikku.

yekko.

kat, Magyar.

ako, Miri.

atero.

yek, Pakhya.

kichchi, E. Nepaul.

hichchi.

sumchi, E. Nepaul.

aomko, Miri.

laya, E. Nepaul.

lichi.

lhyal.

tukchi E. Nepaul.

chhuning, Vayu.

choi, Kooch.

tuk, Serpa.

man. sini, Bodo.

sining, Garo.

man. shini, Kaehari.

nema, Sokpa,

kip, E. Nepaul.

kipu.

kongdyum.

kotdyum.

gis, Limbu.

kong-usang, E. Nepaul.

asim.

kwong asing.

naasang, E. Nepaul.

napung cholok, Vayu.

khika, E. Nepaul.

khiki.

khacho.

khacho, Magar.

		kaso, Sunwar. khako, Tibetan. ku, Chinese. khachim, Vayu. khakha, Dhimal. gakha, Bodo. kha, Burman. kekema, E. Nepaul. kekete. leipa, E. Nepaul. lei. chhuwa, E. Nepaul. choba, Gurung and Murmi. charwa, Thochu. chopka, Dhimal. nuwo, E. Nepaul. nuhwa. noyu. hariyo, E. Nepaul. " Pakhya. " Kusunda, &c. haryo, Darhi, &c. kanni, E. Nepaul. sangnya, E. Nepaul. shecheja, Magar. lepa, Murmi. lhap, Thaksya. usuta, E. Nepaul. uchiva. warawaba, E. Nepaul. hala. harra. wolky, Gurung. bala, Murmi. wala, Thaksya. phana, E. Nepaul. phaya, Brahm. tupsako, E. Nepaul. tupsaha. tumea. gahai, Bodo. gohai, Kachari. chisma, E. Nepaul. kichem, " kachhai, Gyarung. hocho, Pahri.
White, fekete, Magyar.		
Fat, lihawa, Finnic.		
köver, Magyar.		
Good, kywa, Finnic.		
yo, Magyar.		
Green, wiheria, Finnic.		
Handsome, kaunis, Finnic.		
szep, Magyar.		
Hot, palawa, Finnic.		
Raw, uusi, Finnic.		
Red, veres, Magyar.		
punaðnun, Finnic.		
Ripe, kypsi, Finnic.		
Little, waha, Finnic.		
kis	} Magyar.	
kicsi		
kicsiny		

Sour, savanju, Magyar.

hapadu, Finnic.  
Straight, suora, Finnic.

I, mina, Finnic.  
en, Magyar.

Thou, sina, Finnic.  
te, Magyar.

He, han, Finnic.

We, me, Finnic.  
mi, Magyar.

This, ez, Magyar.

tama, Finnic.

And, ye, Finnic.

Yes, igen, Magyar.

There, ott, Magyar.

hocho, Denvar.  
khoso, Pahri.  
savo, E. Nepaul.  
sua.  
suyukha.  
sobu, Gurung.  
gapha, Bodo.  
sori, E. Nepaul.  
sorikha.  
\*anka, E. Nepaul.  
ingka.  
ung.  
maha, Kuswar.  
ma, Pakhya.  
ang, Bodo and Garo.  
gna, Magar.  
\*ana, E. Nepaul.  
sanre, Gyarung.  
tai, Darhi, &c.  
ta, Pakhya.  
hana, E. Nepaul.  
chana, Thaksya.  
hami, Darhi, &c.  
" Kuswar.  
gni mo, Gurung.  
gno me, Gyarung.  
isena, Magyar.  
iti, Dhimal.  
imbe, Bodo.  
imara, Garo.  
tem, E. Nepaul.  
yam.  
ye, E. Nepaul.  
yo.  
ye, Gurung.  
\*hegne, E. Nepaul.  
\*angna.  
ongo, Bodo.  
wotho, Takpa.  
onthu, Horpa.  
hadu, Gyarung.  
uta, Pakhya.  
uchi, Darhu.  
woti, Denwar.  
hudi, Brahmū.  
usho, Dhimal.

Where, kusa, Finnic.  
hol, Magyar.

That, az, Magyar.

tuo, Finnic.

khoda, E. Nepaul.  
heche, Dhimal.  
kachi, Darhi, &c.  
khache, Tibetan.  
kalak, Magyar.  
osena, Magyar.  
issi, Kusunda.  
uti, Dhimal.  
obo, Bodo.  
omara, Garo.  
tya, E. Nepaul.  
uthoi, Dhimal.  
wotho, Takpa.  
outha, Horpa.  
wathi, Vayu.

This paper was first read at the British Association in 1875, but the reading of it before the Anthropological Institute was delayed until the 13th March, 1877. On the 20th March a short paper was read before the Royal Asiatic Society by Mr. G. W. Forbes, F.R.G.S., M.A.S., Bengal, under the title of *Affinities of the Chepang and Kusundah Tribes of Nepaul with the Hill Tribes of Arracan.*

By the courtesy of Mr. Forbes and of Mr. W. S. W. Vaux, Hon. Mem. Anthropol. Instit. and Sec. Royal Asiatic Society, I have seen this paper.

It deals with the eastern relations of the Chepang, Kusundah, Vayu, and Bhamu languages of the Nepaul, included in Hodgson's class of broken tribes. These are chiefly compared with languages of the Burman peninsula, Mru or Toung, Kyeng or Shou, Kami, Kumi, and Sak. Mr. Forbes classifies the Chepang, &c., as Lohitic or Tibeto-Burman with Naga and Karen.

His table includes indubitable resemblances, and is of value as connecting Chepang, &c., with Mru, and, possibly, with Sak, in conformity with what I have stated on this subject.

Among all these languages of the hills of India and of the Burman peninsula there are resemblances for a sufficient reason, because these languages all belong to the prehistoric epochs.

In consequence of this paper of Mr. Forbes's, I considered it desirable to make a new investigation, and I find that though it is true the Chepang, &c., resemble the Mru, yet that the Finnic affinities hold good. The classification of Chepang, &c., as Finnic, is maintained, but as a result of Mr. Forbes's researches the Finnic must be extended to include Mru.

Mr. Forbes has not examined the Naga and Karen languages. These have distinct African relations, more so than the Finnic,



and I therefore place them earlier in the relative chronology and development.

The following are a few examples of the connection of Finnic with Mru, &c. It may be observed that Magyar affords no conformities.

Blood, weri,	Finnic ;	wi, Chepang ;	wi, Mru.
Crow, wares,	"		wa-a, Mru.
Dog, koira,	"	kwi, kui, Chepang ;	ta-kui, Mru.
Goat, kauris,	"	cha guri, Kuswar ;	ta-rau-a, Mru.
Horse, hopa,	"		sapu, Sak.
Name, nimi,	"	ming, Vayu ;	emi, Mru.
			nami, Khyeng.
Night, yo ;	"	ya, Chepang ;	ayan, Khyeng.
Bad, paha ;	"		poya, Khyeng.
Strike, puk ;	"		pok, Burmese.
To-day, tanapana,	"	ten, Chepang	tunap, Kyeng.

In following the subject up, I find that Finnic has borrowed in many cases from the Kolarian languages, a point in favour of placing the Kolarian earlier.

3, harom, Magyar, is connected with 6, harum, Madi.

4, nelja, Finnic, negi, Magyar, is connected with nal, Madi, nalu in Kolarian and Tamil, nakh, Uraon.

20, husz, Magyar, is connected with hissi, Kolarian.

100, sata, Finnic, and sean, Magyar, with Kolarian, sau.

He, han, Finnic, with huni, Santali.

We, me, Finnic, with mam, Madi, mamet, Gondi.

Ye, te, Finnic, with te, Chentsu.

His, hanen, Finnic, with hona, Gondi.

Yes, on, Finnic, with han, Kol.

Yesterday, eilen, Finnic, with hola, Kolarian.

It will be observed that with such facts it would be as consistent to class Akkad with Kolarian as with Ugrian.

It may be well to give some illustrations of the mode in which roots and words have been sorted out from the prehistoric period.

The same set of words, founded on the idea of Round, furnish words for sun and moon, ear and eye, face, egg, and also bean. Secondly, mouth, woman, &c., are connected with moon, and also cat, as in the Egyptian mythology.

This is best observed in Africa, where we have such common forms as mot, turo, so (sun, suku ; moon and ear, barba ; bean, vei), na, woro, tali, calu, caru, anya, nyam, nap, eyi, bela, kan, kono.

In Malay eye is mata ; ear, talinga ; egg, talor ; the roots being thus selected.

Two, thou, that, and there are connected.

A curious example of selection or sorting out is found in the Georgian—2, ori and Basque; that, ori; Lepcha, ore; Madi, orou. By another process I and eye are connected.

Thus by selection a great variety of languages is created from one stock of words, which are more particularly modified by the special selection of pronouns and numbers.

The difficulty of classification becomes, consequently, very great, because races have acted on others as the Kolarian on the Finnic, and on the Basque, and again been acted upon by conquering races, and by those with whom they are in commercial or religious intercourse.

#### DISCUSSION.

MR. B. SOLYMOS—In reply to the remark that my countrymen, the Magyars, themselves seem to know but little about their origin, I beg to state, not as a scholar, but as a mere witness, that they are at least remarkably interested in the numerous and elaborate researches in this field made and being made by the members of their Academy of Sciences.

It is a popular tradition that their ancestors came across the Ural from Asia, and there were Magyar travellers, I believe, both in the last and in this century, who went to Asia specially for the purpose of ascertaining the birthplace of the race, with not much more result, however, than trophies of linguistic facts unknown before and bearing on the subject. Though no philologist myself, I recollect having been struck by all but identical words and sounds, in Hindustani and Magyar, of *kutta* and *kutya* for "dog," as well as by *bajusz* (moustache) and *kapu* (gate, &c.), which are the same both in Magyar and Persian.

It is a cherished hope, not only of its students, but of the nation at large, still to find out that origin; and to illustrate that fond longing they bear to their mythical home, I will further mention that the news some years ago of the "English" comments and conjecture regarding the Babylonian cuneiform inscriptions referred to by Mr. Hyde Clarke, ran like a thrill through all parts of the country and all ranks of society, on the wings of their 250 newspapers and periodicals: for the popular mind, more or less educated by the men of science, clings also to this idea, that the Magyars, when they came to conquer their present country were an highly-civilised people, already in possession of letters of their own. They regret moreover the Vandalism of their first Christian zealots, who destroyed most of the monuments erected already in the new country.

M. BERTIN said: Thanks to the studies of several learned scholars during the last few years, the affinities of the Magyar language are well established now with the Finnic and Ugro-altaic tongues. In

comparative philological researches account must be taken of those affinities as well as of the internal changes of language shown in the Magyar documents since the twelfth century (the oldest known), and of the immixion of foreign words, German, Slaves, &c. Now the problem of the origin can be fairly worked. I quite agree with Mr. Hyde Clarke's views as to this origin. The Magyars seem to have come into Europe with the Huns, and have left all along their road evidence of their passage. Besides, the cuneiform studies appear to show in the very direction pointed out by Mr. Hyde Clarke the existence of nations not far akin to the Magyars. As for what Mr. Hyde Clarke says of the common existence of roots in those Hymalayan countries and American, I can say that lately several French scholars endeavoured to establish an affinity between the central American dialects and the Basque. The latter having affinities with the Ugro-altaic languages would explain this common existence of roots in so far distant countries.

Mr. REES, the President, and others took part.

A copious and laborious paper on the classification of the non-Aryan languages of Metia was read at the last meeting of the Royal Asiatic Society by Mr. E. L. Brandreth, which I have, by his courtesy and that of Mr. Vaux, had the opportunity of perusing.

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The following paper by the Rev. HECTOR McLEAN was read by the Directors:—

*THE SCOTTISH HIGHLAND LANGUAGE and PEOPLE.* By HECTOR McLEAN.

TRACES of the Keltic languages are to be found from Spain to Denmark, and from the west of Ireland to the Crimea; but of the ancient Keltic languages spoken on the continent, our knowledge is exceedingly meagre. The dividing of the ancient continental Kelts into two branches, the one Gadhelic, and the other Kimric, seems to me to be unsupported by a sufficiency of facts, and to lead to erroneous conclusions as regards Keltic tribes and peoples. To what erroneous conclusions a few test words may lead may be illustrated from the modern Keltic languages. The article in Cornish and Breton is nearer to the Gaelic than to the Welsh, *n* being the characteristic consonant in the former, and *r* in the latter. The name for "cresses" in Welsh is *berwr*, in Cornish and Breton it is *beler*, and in Gaelic *biolair*. The Gaelic *biolair* is nearer the Cornish and Breton

*beler* than the Welsh *berwr* is. Several such words could be chosen from these languages, and were they taken for tests, how false should the conclusions derived from them be? Gaelic would be brought nearer to Breton and Cornish than Welsh! In Manks the word for self is *hene*; in North Highland Gaelic *fhin* = *hene*, and in South Argyllshire it is *fhain* = *hane*; yet it would be a wrong conclusion to infer from this and a few other instances, that Manks was nearer to North Highland Gaelic than to Argyllshire. Mr. Skene has shown, in his first volume of "Celtic Scotland," to what fallacious conclusions the careless use of a few test words has led with respect to the geographical divisions of Gaelic and Kimric Scotland. The Keltic dialects of the east and south of Scotland have been lost; the same is the case with those of the north, middle, and south-east of England. Could these be recovered, probably the ancient language of Britain might be united without a break, and our present two branches of Kimric and Gaelic Kelts would constitute but the extreme varieties of one great continuous people. In the same manner were all the ancient continental Keltic dialects known, this people might, in all likelihood, be continued from the east and south of England, through several varieties, into Germany, Belgium, France, Spain, and Italy. Instead of trying to reduce those Keltic names that are to be found in ancient writings or the local names of Keltic origin that abound on the continent to two sister languages, the one Gadhelic and the other Kimric, it would, perhaps, be more judicious to conceive the ancient Keltic as consisting of numerous dialects varying gradually from the Baltic to the Mediterranean, and from the Alps to the west of Ireland.

Tacitus informs us that the language of the Gothini, a nation of Germany, was Gaulish, while that of the Estii, another nation situated further east, was nearer to the British than to the German. From the remarks of Tacitus, it may be inferred that the British, or perhaps some dialects of it, were allied to the language of the Estii, and differed somewhat from that of the Gauls, and that the language of the Estii was Keltic. Probably it was a Keltic dialect much mixed with Finnic and Teutonic in the time of Tacitus.

There is some reason for believing that a Kelto-Finnic people occupied the whole of Germany at one time, and that these were the brachycephalous people whose remains are found in the round barrows, while the old dolichocephalous race that preceded them are found interred in the long barrows. It is probable that the language of the brachycephalous people was Keltic, with a large element of Finnic in its vocabulary, and that that of the conquered race was Euskarian, and allied to the

mother tongue of the modern Basque. Much of the language of the conquered would be absorbed into that of the conquerors; so that the language, in course of its development, would have a considerable portion of its vocabulary of Iberic or Euskarian origin. The arrival of pure Keltic tribes would give a more decidedly Keltic structure to the language, and cause a diminution of non-Aryan words and idioms.

In the modern Keltic languages there are numerous words which would seem to be non-Aryan and allied to Ugrian and Euskarian. Whether these can be satisfactorily shown to be such, or can be satisfactorily traced to an Aryan origin, is a question that is highly interesting and deserving of the consideration of the scientific world. There would appear to me to be an excess of Aryanising at present, so that I feel disposed to think that there is a tendency to make some languages more Aryan than they are, and among these the Keltic languages. The following is a list of words from non-Aryan languages having a close resemblance in form to Keltic words. It would be very gratifying to ascertain whether this resemblance is to be traced to a common origin of the words or to mere accident.

Llan, in Welsh, a yard, a church. Gaelic, *lann*, an inclosure. *Iollann*=*ith-lann*, corn yard. *Bolann*, an ox-stall, a cow-house, &c. Basque *landa*, a garden. Gaelic *ais*, a "hill." Basque *asta*, a rock. *As*, milk. Basque *esnea*. *Art*, a stone. Basque *Harri*, a rock. Gaelic *aoil*, "month." Basque *ahol*. *Aon*, good. Basque *on*. *G. Abhail*, "death." Basque *hivil Ceo*, "mist." Basque *quea*, "smoke." *Gaoi*, a "lie." Basque, *gue*. Gaelic *lar*, the ground. Basque *turra*, the "earth." Gaelic *leanabh*, a "child." Basque, *leinu*. Gaelic *lot*, a "wound." Basque *lot*. *Orc*, an egg. Basque *arrac*. Gaelic *dona*, "bad." Basque *donge*. *Ciar*, "black." Turkish *Kara*. *Toll*, a "head." Non-Aryan languages of Central India, *talla*, *tala*, *tal*; of Southern India, *talei*, *tala*, *tale*, *tele*. Gaelic *faith*, "heat." In the eastern languages of Ahom, Khamti, and Laos, *fai* is "fire." *Lua*, *lat*, a "foot." Magyar, *lab*.

In several of the non-Aryan languages of Nepal, foot is *la*, *losu*, *li*, *le*. From *lua*, a foot, comes *luaigh*, to "walk cloth," which was formerly done in the Highlands by pressing it with the feet. Gael, *lair*, a mare; *loth*, a filly. Magyar, *lo*, a horse. Gaelic, *greadh*, a horse; *gearran*, a work-horse; *greadhair*, a stallion. On the eastern frontier of Bengal, a horse is, in several of the non-Aryan languages, *khori*, *kuri*, *gore*, *gure*, *gori*; in some of those of Central India, *goro*, *ghoro*, *gurram*. Gaelic, *onn*, a "horse." N. E. Bengal, *on*, *onhya*. Gaelic, *ce*, night. Basque, *garu*. Finnic, *yo*. Magyar, *ej*. Turkish, *gejeh*. Gall, a rock. Central India, *kal*, *kellu*, a stone. Southern India, *kal*, *kalla*, *kallu*, *kall*. Sinhalese, *gala*. Turkic, *gun*, *kun*, "day."



"sun." Basque, *eguna*, "day." Samojed, *chu*, "dawn." Breton, *cann*, "full moon." Scotch Gaelic, *camhanach*. Irish, *cam-haoir*, "dawn." Old Gaelic, *eig*, *esga*, *easga*, the "moon," *ecc*, "clear," "manifest." Gaelic, *luan*, a "youth;" *luan*, a "son." Bashkir Tatar, *lan*, boy, son, child. Welsh, *llanc*, a "youth," "lances," a "young woman," *llwyth*, a "tribe." Hungarian, *leany*, "girl," *leanka*, "daughter." Gaelic, *Biail*, an "axe." Welsh Bwyell. *Baltu* means an "axe" in Yenessei and Samojed. Gaelic, *tuagh*, an "axe." Yenessei, Ostiak Tuk. Gaelic, *cl*, *ceal*, "death." Welsh, *celain*, a "dead body." Gaelic, *closach*, a "carcase." Welsh, *celain*. Ostiak, *kul*, "death." Lapp, *calme*, the "grave." Gaelic, *cl*, "mouth." Welsh, *cyl*, a "cavity." Lesghic, *kol*, a "mouth." *Moth* means the male of any creature, and is obviously related to *modh*, a man. Both words are now obsolete. *Modh*, a "man," would seem to be related to the Finnic *mies* and to *mi*, the name for "man" in Tibetan and other eastern languages. The *mi* in Osesmii, would appear to be a cognate name. From *cia*, a "man," are formed *coinne*, "woman;" *cear*, "offspring;" *corc*, "children." *Cearn*, a man, or one of the tribe, is from *cear*, "offspring." Hence come the names of the old tribes, Coriondi, Carnones, Creones, and Caerini. Connected with these words are *gasradh*, the "common people," *gast*, an "old woman." Welsh, *gwas*, a "youth." Cornish, *cosgar*, youths. Comparing these, we may infer that *cas*, in *cassii*, means "man," and that *cassii* means "men," and Tre-casses, Viducasses, Bodiocasses, Bajocasses, mean, respectively, "men of the town," "men of the wood," "dwelling-men," i.e., "natives." *Bodio* and *bajo* = Irish, *beac*, "to dwell," Manks, *baghey*, "dwelling." Tre = Welsh tre, a town, *vidu* = Gaelic *fiodh*, "wood."

The Rev. Isaac Taylor says, in his "Etruscan Researches," that "it is almost universally the case that primitive names of tribes and nations signify simply 'the men,' 'the people,' or 'the tribe.'" He remarks, also, "that the Samojedic dialects give us the two very instructive forms, *lize* and *kasa*, which both signify 'a man.'" "We have here exhibited the transition from the Finnic to the Turkic form. The Turkic *kis*, 'man,' 'person,' which again is identical with the Basque, *gizon*, 'man,' enables us to explain the names of the Kirghiz, the Karagass, the Tscherkas (Circassians), and many other tribe names."

The Gaelic *cia*, "man," *gasradh*, people; the Welsh *gwas*, a youth, and the ancient Gaulish and British *cas*, are obviously cognate with the Basque *gizon*, the Turkic *kis*, and the Samojedic *kasa*.

*Nae* is also an obsolete Gaelic word, meaning "man," from which is derived the modern Gaelic word, *neach*, a "person."

"Widely spread throughout the Ugric area, we find a word which takes the forms *sená, kená, ená, or aína*. This word denotes a 'man' or 'person'—*homo*.

"In the Aino language, *ainu* means a 'man.' In Tscheremis, *en* means 'people,' 'nation.' In Mandschu, *enen* means 'posterity.' In Finn, a man is *innimene*, and in Samojed it is *en-netsche*." Taylor's "Etruscan Researches."

From *nae*, "man," are derived the following Gaelic words:—*naing*, "mother," now obsolete; *naoidheain*, a babe or infant; *niadh*, a champion, nuaill, noble, literally manly. *Nae* is found in the two tribal names, Namnetes and Nitiobrigas, which respectively signify "sacred men" and "men of the land." *Nam* = *naomh*, sacred or holy. *Brig* = Irish brig, land. *Dáe* is another obsolete name for "man," occurring in *Robogdii*, the name of the ancient inhabitants of the north of Antrim, in Ireland. It means "the men that inhabit the promontory." *Ro* = *rudha*, a "promontory," or long, narrow portion of land; *bog* = *beac*, to inhabit, and *di* = *dáe*, "man." The words *ludán*, a "son;" *leanabh*, a "child;" *luan*, a "youth;" *laoch*, a "youth;" *lachd*, a "family;" the Welsh words, *llanc*, a "lad;" *llances*, a "young woman;" *llwyth*, a "tribe;" would seem to point to an obsolete or lost word, meaning "man" in Gaelic and Welsh, cognate with the Lesghic *les* and Samojedic *lize*, each of which signifies "man."

According to Mr. Taylor, "The names of the Lycians, the Ligures, the Leleges, and a host of Turanian nations, are, in all probability, derived from this root." From a kindred root, it would seem to me are derived *Lugi*, the name of an ancient tribe in the north of Scotland, and *Luceni*, the name of another ancient tribe in the south of Ireland; also *Lloegr*, the Welsh name for England. Mr. Taylor says that "the name of the *Mardi*, one of the Median tribes, contains the characteristic Finn gloss *mart* or *murt*, 'men,' which occurs in the names of a very large number of Finnic tribes, such as the *Mord-win* and the *Komimurt*." From these facts, it would appear that "*Mertae*," the name of an ancient tribe in the north of Scotland, bordering on the *Lugi*, is of Finnic origin.

A non-Aryan root, *ar*, meaning water, seems to be preserved in the obsolete Gaelic words, *air-dhi*, a "wave;" *airear*, a "bay," or "harbour;" *arthrac*, a "ship;" and *artraighim*, "to sail." This root is to be found in a great many river names. Irish history informs us that *Islay* was anciently in possession of the *Firbolg*, a people identified by Mr. Skene, in his first volume of "Celtic Scotland," with the *Damnonii* of Scotland and England, and with the *Silures*, a supposed Iberic race. A place through which a streamlet flows in the west of this island is called *Ant-*

*Aoradh*, and a hill next the stream is called *Cnoc an-Aoraidh*, hill of the *aoradh* or "water." In the north of the island is another stream named *Abhainn Araig*. The last part *aig*, here, is a corruption of the Norse *vic*, a "creek." The Norwegians added *vic* to *abhainn ar*, to designate the creek at the mouth of the stream, and *abhainn*, a "river," was no doubt added to *ar* by a people to whose language the latter was a foreign word, in the same manner as the Gaelic people of the same island added their own name, *abhainn*, to *Laxa*, the Scandinavian name of another stream in the same island, and made it *Abhainn Laghsa*. To the root *ar* are to be traced numerous river names in the British Isles and on the continent, *e.g.* the *Ayr*, in Cardigan and Ayrshire; the *Arre*, in Cornwall; the *Aire* and the *Are*, in Yorkshire; the *Arro*, in Herefordshire and Warwickshire; *Aru*, the name of two rivers in Spain; and the *Aray*, in Argyllshire. *Er* and *ir* are names for "water," in some of the non-Aryan languages of Central India; *ár* and *áru* are names for "river," in others; and *éru*, in Teluga, in Southern India; while *ur* is "water," in Basque. *Càrog* is an old Welsh name for a brook. *Gar* is the name of a rivulet falling into the Spey. The *Garry* is a river of Perthshire; and the *Garnoch* is a river of Ayrshire; and there are two rivers called *Carron*, in Scotland. In some of the non-Aryan languages of Central India, *garra* and *khar* are names for "river." *Rath* is an obsolete name for village. Numerous places both in Ireland and Scotland are called *rath*, to which some other word is usually added. Some of the oldest and rudest fortifications go by this name. The name seems to be allied to the Basque *erri*, *iri*, *uri*, a village or town. *Ur*, *uru*, *úru*, are names for village in several of the non-Aryan languages of Central and Southern India. It may be objected to the words of which I have given a list here, that they are perhaps too like each other to justify us in inferring that they are of kindred origin; but it would seem that when the words of one language are absorbed by another, that they become somewhat petrified, and do not change at the same rate as those that naturally belong to the language do. Gaelic names, which have for centuries been introduced into English, have changed but little, while in the language to which they originally belong, the change has been very great. *Angus* keeps very close to the old *Oengus*, while the modern Gaelic form of the same name, *aonghas*, has entirely lost the *g* in pronunciation. The old Gaelic of *Malcolm*, *Maol-colum*, has entirely lost the first part, changed the vowel of the second part, and is now *Calum*. *MacDougall*, *Mac Dhugaill*, has lost the sound of the *g* in Gaelic. *Murdoch*, *Muireadach*, has lost the *d* and become *Muireach*. *Patrick*, *Padruig*, has lost the *d*, which was originally *t*, and become *Paruig*. Words bor-

rowed by Keltic from the languages of the pre-Aryan inhabitants of the British Isles may, I should think, have retained their old forms with but slight alteration, and so bear a greater resemblance to cognate words in the languages of tribes descended from peoples of kindred origin with the pre-Aryan inhabitants of Britain.

The Gaelic language at present fringes the west of the British Isles, from the north of Sutherland, in Scotland, to the south of Kerry, in Ireland. From the north to the south the dialectical differences are considerable, but the variation is insensibly gradual, and South Kintyre is nearer in language to Antrim than to Skye. Kerry men and Sutherland men would at first meeting find it difficult to understand one another, but a fortnight or so of intercourse would, I should think, enable the men of the south to converse freely with those of the north. The digraph *ao* has a peculiar sound in the Scottish Highlands. It is nearly the same sound as that of *y* in numerous Welsh words, such as the article *y, yr*. It bears some resemblance to the sound of *e* in the English word *herd*, and to that of *u* in *churl*. In South Kintyre, *ao* = *ai* in *pain*, and it has the same sound in Munster. In other parts of Ireland it sounds like *ee* in *feel*. As compared with old Irish, the pronunciation of numerous modern Irish words deviates more from the mother tongue than that of the Scotch Gaelic does. The *adh* in such words as *deanadh*, "doing;" *milleadh*, "spoiling;" *tilleadh*, "returning," &c., are in modern Irish = *oo*; but in Scotch Gaelic *dh* retains its peculiar sound, which is = *gh*, a sound like that of *g* in German words ending in *berg*. In some parts of the Highlands this *adh* = *av*, and in others it is the same as the Irish. Such verbal nouns as *beannughadh*, "blessing;" *suidhiughadh*, "placing;" *gearughadh*, "sharpening," are pronounced in two syllables, and the two last syllables in all of them are = *oo*. In Scotch Gaelic the corresponding words are *beannachadh*, *suidheachadh*, *geurachadh*, which are pronounced in three syllables, as old Irish was, *ch* being = German *ch*, and *dh*, as already stated, = German *g* in *berg*. Old Irish converted *ch* into *g* in such verbs as *intonnaigim*, "inundate;" *cumactaigim*, "to be able;" *dephthigim*, "to disagree," as appears from the adjectives from which these verbs are formed; *tonnach*, "abounding in waves;" *cumachtach*, "powerful;" *debhthach*, "disagreeing." The *ch*, which old Irish converts into *g*, and modern Irish into *gh*, is retained intact in Scotch Gaelic. This fact leads us to infer that old Irish is not directly the mother tongue of modern Scotch Gaelic, but a sister dialect of its mother tongue. Zeuss speaks of there being four roots of the substantive verb in Irish, one of which is *fil* for the present tense. From this root *fil* comes the modern Irish form *bhfuilim*,

"am I." The Scotch Gaelic form, *am bheil mi*, "am I," is evidently not derived from the old Irish *fil*, as the north Highland form is *am beil mi*, "am I." *Beil* is surely derived from *bi*, "be," and would seem to be even an older form than the old Irish *fil*.

The negative *cha*, "not," in Scotch Gaelic and in Manks, takes the place of the Irish *ni*, "not," in negative propositions. *Nach*, a negative interrogative particle, found in modern and ancient Irish, as well as in Scotch Gaelic, is compounded of the interrogative particle *an* and the negative *cha*, "not." As *cha* is not found in ancient Irish, and the compound interrogative negative particle *nach* is, it is clear that Scotch Gaelic and Manks retain a word which became obsolete in ancient Irish.

Adjectives and substantives, with respect to case endings, are inflected both in modern Scotch and Irish Gaelic, much alike; the dative plural in *ibh* and *aibh*, however, has mostly disappeared in spoken Scotch Gaelic. The nominative plural of all the substantives in Scotch Gaelic, except that of those that form the plural by changing the radical vowel, ends in *n*. This is a form of the plural rather rare in Irish Gaelic, but frequent in Welsh. The synthetic present tense of the indicative has entirely disappeared in Scotch Gaelic, and its place is supplied by the analytic, which is formed by the substantive verb and a verbal noun. This may be accounted for by the future having lost its characteristic consonant, *f*, which rendered it hardly distinguishable from the synthetic present. The sound of the future *f* is now lost in Irish pronunciation. The tenses of the imperative and conditional only are inflected for number and person. The imperative mood in Scotch Gaelic is complete in all the persons singular and plural. The Irish wants the first person singular of this mood. The first persons singular and plural of the Scotch Gaelic imperative are identical in form with the first persons singular and plural of the Irish present indicative. The Scotch Gaelic has no consuetudinal tense. Its conditional mood differs a little from the Irish, and is less inflected. Neither of the languages has an infinitive or present participle; the place of both these is supplied by prefixing prepositions to the verbal nouns, e.g., *Deanadh*, "doing," *Tha e a'deanadh*, "he is at doing," *do dheanadh*, "to doing." The sound of English *w* is not found in Scotch Gaelic, but is found in Irish, *mh* and *bh* having that sound in this language before *a*, *o*, and *u*. In Scotch Gaelic the sound of these digraphs is nearly that of English *v* in all cases.

The Gaelic language wants a verb corresponding to the English "to have," and possession is expressed by the substantive verb and the particle *aig*, "at;" e.g., *Tha tigh aigam*, "I have a house;"



literally, a house is at me. *Tha airgid aige*, he has money; literally, money is at him. There are some phrases that are peculiar, such as *Tha e' na shlaointe*, he is in health, literally, he is in his health: *Thae'na thuathanach*, he is a farmer; literally, he is in his farmer. There is but one inflection for the comparison of adjectives, which serves both for comparative and superlative, e.g., *Tha e nios cruaidhe*, it is harder; literally, he is in that is harder: *Au rud a's cruaidhe*, the hardest thing; literally, the thing that is hardest; *Tha Iain nios laidire na Teumas*, John is stronger than James; literally, John is in his is stronger or James.

That change of initial consonants called by Irish grammarians *eclipsis*, by which the surd consonants are converted into the corresponding sonants, b into m, and d and g into ñ, is not to be found in Scotch Gaelic. It is peculiar to middle and modern Irish, and is not found in the old language. A similar initial mutation is to be found in middle and modern Welsh. It is very remarkable that although cultivated Irish was chiefly, in the middle ages, the written language of the Highlands, and that the Highland bards studied the principles of their art in the Irish bardic schools, yet this northern Keltic speech resisted all the influences that tended to produce this peculiar mutation of initial consonants.

There are good grounds for believing that the Caledonii of Tacitus are not entirely identical with those of subsequent classical writers. Those large-bodied, ruddy-haired men cannot certainly be considered as the ancestors of the black-haired, brown-skinned, dark-eyed little people that now abound in so many districts of the Highlands, and who so much resemble the people of South Wales, the south-west of England, and the west and south-west of Ireland. This dark people are evidently descendants of races that preceded the tall yellow-haired Kelts. There is no reason to think that the Caledonians of Tacitus either smeared their skin with woad as the Britons of Julius Cæsar did, or punctured it with the figures of various animals, as was done by the Picts mentioned by classical writers who wrote long after the age of Tacitus. Tacitus was not likely to pass over such a strange custom in silence, or several other customs peculiar to the Picts, such as community of wives. The Caledonii of Tacitus were armed like the ancient Kelts, with small shields and large cutting swords, blunt at the point and not fit for stabbing. The dagger, which was as indispensable to the Highlanders of the middle ages as the broadsword, was wanting. In this respect they differed from the contemporary Germans, who were armed with the *framea*, a small pointed sword, and from the Caledones and Picts of writers subsequent to Tacitus, part of

whose arms were a dagger and a short spear. The Caledonii of Tacitus would appear to have brought their whole force forward to fight the Romans under Mons Grampius. There, after having fought bravely, they were completely overthrown and ruined. They were evidently the dominant tribe of North Britain, and after this defeat it would seem the subject-painted people regained their independence, and amalgamated on equal terms with their former masters.

In their mode of warfare both Picts and Silures resembled the Iberians. They did not engage the Romans with all their force at once, but encountered them in guerilla warfare. According to Polybius the Spaniards were armed with swords made for cutting and thrusting; and from Roman writers we learn that the Picts were armed with daggers and short spears. Strabo informs us that the Romans found it more difficult to conquer the Iberians than the Gauls, owing to their different modes of warfare. One battle broke down the Caledonians of Tacitus, while the Silures withstood the Roman arms for nine years. The Silures were a dark race, like the Iberians; the Caledonians resembled the ancient Gauls and Germans. In Ptolemy's time the name of Caledonii was confined to a tribe whose territory extended from the Beaully firth to Loch Long. This tribe bordered on tribes inhabiting that part of Scotland now called the West Highlands, and were obviously called Caledonii more especially to distinguish them from the tribes west of them, the Cruithnigh, Picts, or painted men, who were a commixture of several races, pre-Keltic and Keltic, and who latterly conquered their conquerors, with whose blood theirs was now commingled.

The following is Mr. Skene's summary of Tacitus' account of the Caledonians:—

“He observes one of the peculiar customs of the Britons among the Caledonians—the fighting in chariots, which was now apparently confined to the ruder tribes of the north; but it is remarkable that he alludes neither to the practice of their staining their bodies with woad, nor to the supposed community of women among them. He shows that, in the wedge-like shape attributed to Britain by previous writers, Caledonia was excluded as still unknown to them. In the language put by the historian into the mouth of the Caledonian leader, Calgacus, he implies in the strongest manner that the tribes embraced in the designation he usually gives them of inhabitants of Caledonia, were the most northerly of the British nations; that no other people dwelt beyond them; that they had neither cultivated lands, mines, nor harbours; and that he knew of no state of society among them resembling the promiscuous intercourse of women, as he mentions their children and kinsfolk, their wives and sisters, in lan-

guage only consistent with the domestic relation in greater purity."

Here we have a pure Aryan people described, free from all the non-Aryan customs peculiar to the Picts. The hand-fasting of the Highlands, that loose kind of marriage, which James the Sixth found so difficult to eradicate, would seem to owe its origin to the community of wives that prevailed among the Picts. The Picts would seem to have been originally the brachycephalous people whose remains are found in the round barrows, and who were driven westward by pure Kelts in Scotland into the mountainous regions of the Western Highlands, the marshy plains bordering on the Forth and into Galloway, in Ireland, into Connaught, West Munster, and Ulster. Exogamous marriages converted them into a mixed Keltic people, or, if originally a mixed Keltic people, into a people more Keltic than they had previously been. They are always mentioned in old Irish writings as Cruithnigh, or painted men, who excelled in magic, poetry, and arts, and are distinguished from the *Gaedheals* or Scots, and the *Firbolg*. In old Welsh writings the Picts of Scotland are called *Gwyddil Ffichti*, a name which implies that the Picts were a commixture of Gaels and another race; that, in fact, even after the battle of Mons Grampius two peoples were united originally different from one another, the one of which were the Caledonii and the other the Picts. The name Caledonii is cognate with *Celtae* and *Gaedil*. The primary part of the name *Celtae* is *Cel* = *Gal*, as in *Galatae* and *Galli*, and *Cal*, as in Caledonii. *Gal* in Irish means kindred; *gaol* means the same; and *Brathair gaol* signifies one of the same tribe; literally brother of kindred. *Gaedal* is formed by metathesis from *Gaelad* or *Gael d  e*, a kindred man; similarly Caledonii is resolved into *Cal* or *gal*, kindred, and *donii* = *   ine*, old Irish plural of *duine*, a man. Caledonii, then, is equivalent to *Gaidheal*, the name by which a Scottish Highlander of the present day calls himself, the modern Irish form of which is *Gaoidheal*, the name by which an Irishman calls himself in his native language. Had all the Picts whose name was changed into Scots in the twelfth century, been Cruithnigh, it is not likely that all the people of the Scottish Highlands, in fact all the Gaelic speaking people of Scotland, who in the tenth century extended to the German Ocean, would have adopted a name peculiar to an Irish people who settled in Argyllshire, and were comparatively small in numbers. The name of Gael was not, therefore, introduced by the Dabriadic Scots, but was the name of the descendants of the pure Caledonii in the north-east of Scotland before their kinsmen, the Scots of the west, had acquired ascendancy over the Picts. The name *Calgacus* is purely Gadhelic, and is de-

rived from *calg*, an old Irish name for sword. *Calgacus*, therefore, means swordsman or warrior, and is the same name as the old Irish name *Colgach*. *Vacomagi* means "sons or men of the plains." It is formed from *Vaco* = Gaelic *faiche*, a "plain," and *mag* = *mac*, "son." *Horestii* denotes the "men of the east," and is derived from *Hor* = Gaelic *oir* or *h-oir*, "the east."

The Caledonii of Tacitus would seem to have been a more recent body of Keltic immigrants than the southern Britons, and to have come across the German Ocean; probably from the Cimbric Chersonese or modern Jutland into the north-east of Scotland. The colonisation of Britain by Kelts was in all likelihood progressive, as was the case with the Angles and Saxons and lasted for some centuries. The pre-Aryan population was driven westward, as happened at a subsequent period to the Britons, and the pre-Aryan languages were supplanted by the Keltic as the British was by the Anglo-Saxon.

Throughout the Scottish Highlands the ethnologist observes that a large portion of the population is dark-skinned, dark-haired, and grey-eyed, dark-eyed, and small in stature. In these respects the Highland people bear a strong resemblance to the Welsh, the south-western English, the western and south-western Irish. The dark population does not seem, by any means, to be homogeneous, but would appear to be a commixture of several races. A dolichocephalous skull is the more frequent among them, although round heads are not rare. One type is to be observed with straight profile and rather flat forehead, somewhat like the Basque; a prognathous type, with prominent eyebrows and receding chin, is frequent. These types are occasionally found with flaxen, red, and yellow hair. A type is to be met with long head, long oval face, eyes various, and complexion varying from fair to dark. Person rather slender; often tall. This type I would call characteristically Keltic. Children are to be seen with flaxen hair and dark eye lashes. The hair of these children as they grow up darkens and becomes dark brown, and sometimes even black. These various types are found in the same family, derived from father and mother without producing intermediate ones. Members of the same family are also found alternately flaxen-haired and black-haired, flaxen-haired and red-haired, black-haired and yellow-haired. I have found bright red hair and light red hair alternate in the same family. One brother had a long head, a long face, brown complexion and bright red hair, the other a round head, round face, light red hair, and a florid complexion. I have frequently found the occipital protubérance large in the heads of men of the Scandinavian type that I examined. I found this also to be the case in the head of a fair Icelfander; the only Icelfander whose head

I examined. I have found in many fair Highlanders the portion of the backhead joining the neck broad and flat, and, in long-headed dark Highlanders, that part flat, and the part immediately above it remarkably prominent.

Bright red or bright yellow hair is not frequent in the Hebrides. Light red and light yellow hair abound, passing through several shades of yellowish and reddish-brown into reddish and yellowish dark-brown. In Islay the complexion varies from sallow to fair. The most frequent colour of hair is reddish-brown; the most frequent colour of the eyes is grey and bluish-grey. In the south-west of Islay fair and sandy hair, accompanied by a fair complexion, prevails. In Colonsay fair and sandy hair is frequent, and the complexion is usually fair. In Jura lithe men with dark hair, dark eyes, dark complexions, and oval faces strongly attract the attention of the ethnological observer. In Barra the people have usually dark and brown complexions, and the colour of the hair is reddish-brown, dark reddish-brown, and black. Very fair persons, however, are to be seen. In the little island of Minglay, two types struck my attention when I visited it sixteen years ago. The one had fair hair and a very clear skin, square face and head, and a full round chest. The other was lithe in form, with dark complexion, long oval face, long arched eyebrows, long high head, and light grey eyes. I met with this type occasionally throughout the whole of the long island, and everywhere in those parts of the Highlands which I have visited. In South Uist and Benbecula dark hair, dark and grey eyes, and dark complexions predominate. In the west of Sky, about Dunvegan, the people are fair haired and clear-skinned, and evidently belong chiefly to the Scandinavian race. In Stornoway the frequency of tall and fair persons strongly attracted my attention, and I was astonished at the number of tall and fair natives of Harris that I met at various places.

It is evident that the racial characteristics of the people of the West Highlands, especially of the Western Isles and of the coast line, have been materially altered by the Norwegian occupation which commenced in the eighth century and ended in the thirteenth after the battle of Largs. I have looked at Danish, Swedish, and Norwegian sailors in the island of Islay side by side with Highlanders, and was surprised at the close resemblance that the former bore to the fair portion of the latter. I have been equally surprised at the close resemblance that a French crew bore to dark Highlanders seen along with them.

Local names of Norse origin are to be found in all the isles and all along the coast line. In Islay names of Norse origin



constitute one half of the names of places, and in Lewis probably a great deal more than one-half. Some personal names are of Norse origin, which are at present frequent in the Highlands, such as Torquil, Tormod = Thormund, Anglicised Norman. Somhairle = Somerled, Anglicised Samuel, and Raonailt = Raginhilda, Anglicised Rachel. Careful research, I have no doubt, would find numerous words of Norse origin in Irish, Scotch, Gaelic, and Manks. The Norse word for "neighbour" has supplanted the Gaelic name, *coimhearsnach* in North Highland, Gaelic, and in Manks. In the former it has taken the form *nàbuidh*, and in the latter naboo. Danish, nabo.

*Fir Gailliain* or *Gailiun*, one of the names of the *Fir bolg*, brings us back to the stone period. *Gaillian* means a "dart," but literally, a "stone dart," and is derived from *gath*, a "spear," "dart," or "arrow," and *lith*, a "stone." Old Gaelic traditions frequently mention a weapon named *gath builg*, "bag dart." A variant of the story of Conlach and Cuchullin relate that these two, father and son, fought one another with this weapon, which was thrown from the hand. The *Fir bolg*, or men of bags, or quivers, were evidently so called because they carried quivers, and were armed with this weapon. *Gath bolg* and *bolg-saighead* are Gaelic names for quiver. The other name *Fir Domhnon* would seem to come from *dumh*, a "mound," and those earthworks called *raths* are usually attributed to the *Fir bolg*. *Dam* and *dum* in *Dumnonii* and *Damnonii* are evidently forms of *dumh*, a mound, and hence *damnonii*, *dumnonii*, and *Fir Domhnon*, as names which signify mound builders.

The Scottish Highlanders of the present day are a commixture of several races, Keltic and Scandinavian, and it would seem to me that the pre-Keltic races could not have been fewer than three or four.

#### DISCUSSION.

In the discussion on the above paper Mr. HYDE CLARKE observed, that the zeal of the Celtic enquirers had brought to light many points of resemblance between their languages and those of other parts of the world. In the last century the Rev. Hugh Rowlands, in his *Mona Antiqua*, produced a list of 1,000 Hebrew analogues. At the British Association a paper was read on Polynesian conformities. The Rev. Professor John Campbell, now of Montreal, has illustrated these relations from Peruvian. Some of these approximations were fanciful, some casual, but others were true; because Celtic, like Sanskrit, is derived by development from the prehistoric stock. They consequently deserve more attention than they have received, because the observation of these points will enable us in time to account for many of the phenomena of the Indo-European family for instance. There can now be no reasonable



doubt that there were Sumerians in these islands, as elsewhere in Europe. As an illustration of these prehistoric peculiarities in Celtic, it is worth while putting on record the observations of Professor Campbell, the learned explorer of the genealogies and chronology of the Bible. Prof. Campbell informs me that out of 95 words in my Peruvian vocabulary ("Prehistoric Comparative Philology," p. 64) he has found well-defined Celtic equivalents for above 70. He says

"I connect the Aymara Stonehenge of Tiahuanaci with the Cymric Stonehenge of Emrys or Ambrosius. The point where Cymri and Aymara diverged north and west was Mauretania. There we find Gumeri, speakers of the Aquei Amazig, Ait Amor or Zimuhr, Pritchard's Celtic Cambrians. They became the Cimbri of Spain, and the namers of Gomera, Pliny's Ombrios, in the Canary Islands. Rivero Tschudi (chap. 2), connect the Canary Islanders and the Aymaras physically, and by their customs. Flattened crania are found among the Celts. The Canary Islanders and the Berbers (Ait Amor, &c.) are the same people. Their vocabulary is fundamentally Celtic, like that of the Aymaras. The Berbers are the Accad and Armenian Burbur. All (Aymaras included) are mountaineers. But the Berbers came from Barbaria in Ethiopia. See Pliny, Strabo, Leo Africanus and Arabian authorities on Maghrib. There we have Amharas in your Danakil region. Nearer Egypt were Sembrite and Zeniris (Ait Zimuhr). The Amhara came from Himyarite Arabia, which is also the region of Pliny's Zamareni. All Himyarite culture and worship connects with Chaldaea. It was original in Chaldaea, not in Arabia. The Semtscritae are the same people, but were never in Arabia. Psammetichus placed these invaders of his northern coast as a barrier against Ethiopia. Semtscritae and Himyarites (not Sabacans, who are distinct) came perhaps through Palestine from Armenia, the Burbur region, which Mr. Boscawen (Trans. Soc. Bib. Archaeol., vol. iv, p. 293) connects with Gimirrai or Cimmerii. There is Pliny's Zimara. These, again, are the Zimri of the inscriptions, whose home was among the mountains of south-western Media. To this point they came from southern Assyria, about Hamra and the Hamran Hills. They were then known as the Khamri and Khamarani. Their original home was either in the Hymer district about Babylon, or at Gomoreck, further south. Hammurabi was their great ancestor, and he is the Zimran of my second paper on the Celts. There, also, we find the first Burbur race. Stonehengings in Arabia, Media, &c., connect the people archaeologically. In Accad, Danakil, and Aymara you have connected them philologically. Add my Celtic connection, which I think the underlined words will at least bear out. Try Berber. I have no

vocabulary, but here are a few words:—Tahuyat = covering, Welsh tôad; Amen, water, Erse amhan, river; Athraar, Iddra, mountain, Gaelic torr; Ahoren barley, Gaelic corna; Ana, sheep, Celtic uan, oen, wyn, lamb; Bukul, earthen pot, Erse bachla, a cup; Akfic, head, Erse cab, Welsh copa; Tigameen, houses, Gaelic tighean; Tigarer, a place of justice, and Tigotan, heavens, are compounded of the same word. Had I a good vocabulary I do not doubt that the Berber would come very close to the Aymara. The Cymri were, I think, older than the Celts proper, at least as British colonists. Some of the words in your vocabulary that do not coincide with the Celtic do with the Latin (kkollo, collis), perhaps through Umbrian, which is Celtic, and with the Germanic (kkollo, kügel; lappi, lamb; socco, A. S. suacga). The Cymri were the African branch of the Zimri, the Cimbri the European. Semitic roots appear, ucuichua cuspi, flies is the Semitic Zebub: Aymara lupi, sun is Semitic lahab. Himyaritic gives these and Amharic stages.”

*Comparative Vocabulary: Peruvian and Celtic.*

			PERUVIAN.	ERSE.	GAELIC.	WELSH.
Man	..	A.	<i>Kkari</i>	<i>cearn</i>	—	gur.
"	..	Q.	<i>runa</i>	<i>reim</i>	—	—
"	..	A.	<i>chacha</i>	<i>cia</i>	—	—
"	..	Q.	<i>cozca</i>			
Woman	..	Q.	<i>rakka</i>	<i>reac</i>	<i>gruagach</i>	<i>gwraig</i>
"	..	A.	<i>marmi muireau, muirui</i>	—	—	<i>merch</i>
Head	..	A.	<i>ppekei</i>	<i>feighe (top)</i>	<i>beic (beak)</i>	<i>pig</i>
Hair	..	A.	<i>suneca</i>	<i>gimmach</i>	—	<i>sioch</i>
"	..	Q.	<i>socca</i>	<i>sunadh</i>		
Face	..	A.	<i>akanu cionnacha, cainisi</i>	—	<i>gunis</i>	—
Eye	..	A.	<i>naira</i>	<i>amharc</i>	—	—
Ear	..	A.	<i>hinchu</i>	<i>ogh</i>	—	—
Mouth	..	A.	<i>*llaka</i>	<i>billiog</i>	<i>duilleog</i>	—
"	..	Q.	<i>simi</i>	<i>scamh</i>	—	<i>safu</i>
Tooth	..	A.	<i>kehaka</i>	<i>feacc</i>	—	—
Heart	..	A.	<i>chuimo</i>	<i>caemh (love)</i>	—	—
Hand	..	A.	<i>tachlli</i>	<i>glac</i>	—	<i>llaw, deanlaw</i>
				<i>tuthal (left hand)</i>	<i>toisgeal</i>	<i>(right hand)</i>
Foot	..	A.	<i>kayu</i>	<i>cas, cos</i>	<i>cas, cos.</i>	—
"	..	Q.	<i>chaqui</i>	—	—	—
Horn	..	A. and Q.	<i>huakra</i>	<i>croc</i>	<i>croc</i>	—
Skin	..	Q.	<i>ccara</i>	<i>guar, guairche</i>	<i>croicionu</i>	—
"	..	A.	<i>lepitchi</i>	<i>leabthach (bedding! of skins)</i>	—	—
Sun	..	A. and Q.	<i>inti</i>	<i>ion, ong</i>	—	—
Moon	..	Q.	<i>quilla</i>	<i>gealach</i>	<i>gealach</i>	—
"	..	A.	<i>paksi</i>	<i>eac, eag, easga</i>	—	—
Star	..	A.	<i>sillo</i>	<i>silsighim (shine)</i>	—	<i>ser</i>
Day	..	A.	<i>uru</i>	<i>ur (sun)</i>	—	—
Fire	..	A. and Q.	<i>nina</i>	<i>an, ain, ong</i>	<i>teine</i>	<i>tan</i>
Water	..	A. and Q.	<i>yaku</i>	<i>oiche</i>	<i>uioge</i>	<i>gwy</i>
"	..	Q.	<i>unu</i>	<i>ean, an</i>	—	—
River	..	A.	<i>hahuiri</i>	<i>suir</i>	—	—

		PERUVIAN.	ERSE.	GAELIC.	WELSH.
Stone ..	A. and Q.	kak	dach, doch	dach, doch	—
Tree ..	A.	khoka	geag (branch)	—	—
" ..	A.	quenna	guia	—	—
Leaf ..	A.	*lakka	lag, lagau	(cavity)	—
House ..	A.	uta, ata	ait, aircas, aithe,	tigh	ty
" ..	A. and Q.	pimcu	bocan, hmait	—	—
Sheep ..	A.	ccaura	caera	caora	—
" ..	A.	una	uan	uan	ocu, wyn
Goat ..	A.	paca	poc, boc	—	—
Dog ..	A.	anakara	cu-cunaich (spaniel)	—	—
" ..	Q.	calatu	callae	—	gelgi
Snake ..	A.	katari	nathair	nathair	neidr
Fish ..	A.	kanu	cigne, cagna	—	—
Good ..	A.	asque	seag (beauty)	—	—
Bitter ..	A.	haru	garu	gewr	cheweur
Black ..	A.	chamaka	ceomhar (dark)	—	—
Red ..	A. and Q.	pako	basc	—	—
Give ..	A. and Q.	chu, ku	ascadh (gift)	—	—
Run ..	Q.	huayra	—	—	gyru
Flow ..	Q.	puri	—	—	ffridio
Go ..	A. and Q.	humi	cime	imich	—
Speak ..	A.	arusi	—	aithris	areithio
" ..	Q.	rima	reim (call)	reicim (tell)	—
Eat ..	A.	mancana	man	manchainne	—
Die ..	A.	amaya	samh	meath	gmado, masu
Cut ..	A.	cuta	gutach	sgath sgad	cwytan
Cry ..	Q.	hnaca	cigim	—	—
Place ..	Q.	chura	cuirim, creas	—	—
Rise ..	Q.	hatari	—	—	dwyre, dyddwyre
Raise ..	Q.	huearo	corra-ghim	—	—
An ..	A.	naka	cia (cach)	—	—
" ..	Q.	kuna			
No ..	A.	hani	cha'n	cha'n	—
Negative ..	A.	na	me	mi	me
Thou ..	A.	ta	tu	thu	di
He ..	A.	hupa	—	—	eife
" ..	A.	ni	neach	—	—
Plural ..	A.	kana	gon	—	gwahanu
Nose ..	Q.	cenca, cinga	cuinean (nortell)	cuinean	—
Mise ..	Q.	poccoy	abuigh	abuich	—
" ..	Q.	hnayllaca	—	—	syloh
" ..	Q.	missac	meacan	meas	—
" ..	Q.	lluchos	—	laogh (calf)	—
" ..	Q.	carachupas	—	currag	—
" ..	Q.	atoc	—	—	gwyddgi
" ..	Q.	cuyas	coisein	—	—
" ..	Q.	callu	coill	coille	—
" ..	Q.	para	—	fras	—
" ..	Q.	anta	unga	—	—
" ..	Q.	komer	—	corm	—
Fat ..	Q.	raccu	rogmhar	—	—

The meeting then separated.

\* Leaf = tongue, H.C.

MARCH 27TH, 1877.

Col. A. LANE FOX, F.R.S., *Vice-President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following new member was announced: Capt. W. SAMUELLS, Bengal Staff Corps.

The following presents were announced, and thanks were ordered to be returned to the respective donors for the same.

FOR THE LIBRARY.

From the INSTITUTION.—59th Annual Report of the Royal Institution of Cornwall, 1877.

From the AUTHOR.—On the Peopling of America. By A. R. Grote, A.M.

From HYDE CLARKE, Esq.—The Eastern Origin of the Celts. By John Campbell, M.A.

From the SOCIETY.—Transactions of the Asiatic Society of Japan. Vol. IV.

From the SOCIETY.—Bulletin of the Buffalo Society of Natural Science. Vol. III. No. 4.

From the ACADEMY.—Atti della R. Accademia dei Lincei. Vol. I. No. 3, 1877.

From the AUTHOR.—Select Plants for Industrial Culture or Naturalisation in Victoria, 1876. By Baron Fred. Von Müller.

From the SOCIETY.—Bulletin de la Société Imperiale de Naturalistes de Moscow. No. 3, 1876.

From the EDITOR.—Archiv für Anthropologie. Neunter Band, Viertes Vierteljahrshft, 1877.

From the EDITOR.—Revue Scientifique. Nos. 38 and 39, 1877.

From the AUTHOR.—L'età della pietra nelle province Napoletane; Scoperte pre-istoriche nella Basilicata e nella Capitanata; Ulteriori Scoperte relative all'età pietra nelle provincie napoletane; Nuove scoperte pre-istoriche nelle provincie napolitane. By Prof. G. Nicolucci.

From the AUTHOR.—Etudes Paleoeethnologiques dans la Bassin du Rhone. By Ernest Chantre, Hon. M.A.I.

It was announced that the Council had voted special thanks on behalf of the Institute to M. Chantre, for his present "Age de Bronze."

The following papers were read by the Directors:—

*On a "KITCHEN MIDDEN" AT VENTNOR.* By Mr. Hodder M. Westropp.

IN excavating for the foundation of a house at Gils Cliff, near Ventnor, a kitchen midden was lately discovered. In it were found several fragments of pottery, bones, and shells. A fine example of a stone-hammer, or more probably a corn crusher, was also found. It is 8 inches long, with a circular indentation in the centre. In shape it exactly resembles those found in Scandinavia and in Yorkshire, and as figured in Wilson's "Stone Age," and in Evans' "Ancient Stone Implements." Higher up the cliff, the remains of a fireplace and a kitchen midden occur. Among the remains of the fireplace were found a large quantity of charcoal, and some large stones exhibiting deep traces of the action of fire, together with a number of small round pebbles. In close proximity to this fireplace was the kitchen midden, or refuse heap, where were found numbers of limpet shells, oyster shells, cockles, &c., thickly massed together; and in conjunction with these were several bones of the ox, sheep, pig, &c. Intermingled in this heap were fragments of pottery of Roman and Romano-British manufacture. Two rubbing stones also turned up. Several nodules of iron pyrites were also met with, evidently used, as Mr. Evans has suggested, for striking fire. The most remarkable find in this kitchen midden was a small cinerary urn, five inches in width, nearly perfect. It is of an unusual shape, and presents a peculiar and very rare style of ornamentation, consisting of a band of coralline seaweed round it. A fragment of another urn was also found presenting the same ornamentation. Another kitchen midden was discovered some years ago, on making the new entrance to Steephill Castle. It consisted of heaps of limpet shells, intermingled with fragments of rude pottery, and the bones and horns of the ox. It is, doubtless, of a very early period, and of a very rude and primitive age, as the pottery found in it is very rude and coarse, the ornamentation being done by laying a string on the wet clay. From the marked difference of the pottery found in the kitchen middens near Ventnor, they evidently belong to different periods, separated by a wide interval of time. The pottery found in Gil's Cliff must be of a later date, as it is of a very fine clay, and of a black colour, while the ornamentation is very elaborate, and carefully traced in diagonals with a stick on the wet clay. Evidence of a Roman period appears in the kitchen middens in Gil's Cliff, as Samian ware, and pottery of a very fine clay and of a dark red colour are found in them. The rude fragments of

pottery near Steephill Castle evidently belong to the stone age, while those on Gil's Cliff appear to be of the bronze age. Traces of several other kitchen middens occur near Ventnor. In digging for graves in the churchyard of the old church at Bonchurch, heaps of periwinkles and limpet shells are turned up, evidently the remains of kitchen middens; the tusk of a wild boar was also found there. Another was observed near the Ventnor railway station. Intermixed with oyster shells were a number of sheep's bones; a human jaw bone of large size was also found, evidently belonging to some gigantic savage of primitive times. Traces of a rude kitchen were discovered at Underwath, about a mile and a half from Ventnor. A large stone was found over a heap of charcoal and ashes. The food to be cooked was placed on the heated stone, as done by the Australians and other savages of the present day.

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*On a "KITCHEN MIDDEN" FOUND in a CAVE NEAR TENBY, PEMBROKESHIRE, and EXPLORED by WILMOT POWER, M.R.C.S.E.  
By EDWARD LAWS, late 35th Regt., Jan., 1876.*

THERE is in the limestone rock, about two miles inland from Tenby, a well-known bone cave called Hoyle's mouth, christened, I fancy, after a Flemish family, for though the name has disappeared in South Pembrokeshire, I am informed it still exists in Cumberland, the site of the first colony from Flanders which was removed to West Wales in the 12th century by Henry First. Many scientific (and unfortunately, also, unscientific) folks have dug in this cavern. Among the former, Mr. Smith, rector of Gurfreston, has been the most successful.

He has found *hyæna crocuta*, *ursus spelæus*, *rhinoceros tichorinus*, *cervus terandus*, *cervus elephas*, *equus spelæus*. Human bones, the remains of domestic animals, chips of flint, and a remarkable hornstone, copper coins of George Third, and an old pen-knife.

What renders this medley the more confusing is that the objects were mingled together, and not distributed in layers as in the more fortunate caves. However, although the upper strata has been ransacked, there are, no doubt, treasures still to be found in the virgin breccia of some of the inner chambers.

I dug for several days in this cave, and objects turned up, but they were evidently the overlooked leavings of others, and, having been displaced, appeared to me to be worthless.

So I determined to try another cave nearer to Tenby, and known as the "Little Hoyle," or "Longbury Bank." At first



sight the latter name is suggestive of burial, but we must remember that this appellation, not being Keltic, must have been given subsequently to the year 1100. For, so far as I can find, *no* Welsh traditions are embodied in the English nomenclature of South Pembrokeshire, and when we find that "bury" is used in this county to signify a fox-earth as well as a rabbit-hole, I think the fact that Long bury is a celebrated breeding-place for these animals, and that there are entrances to the earths on both sides of the rock which appear to communicate, will account for the derivation of the name. This I am the more anxious to trace, as competent persons have thought that this cave has been used for sepulchral purposes, a conclusion in which I cannot concur.

Speaking of this place in "Cave Hunting," Professor Boyd Dawkins says, "It was explored by the Rev. H. Winwood in 1866, who found in it the remains of *bos longifrons*, goat, badger, and dog, as well as oyster and large limpet and mussel-shells. Some of the bones are burned. Several human vertebræ, and a metacarpal, probable traces of an interment of unknown date, and two flint flakes of uncertain age." He adds, "It was inhabited in historic times, since it contained fine-grained pottery of the kind usually found in the ruins of Roman villas."

When Mr. Power and myself began our operations in January last, it was quite apparent what portions of the cave had been explored, and what were untampered with. For, though owing to the dryness of the place, there is no stalagmite, yet a certain amount of surface-water, filtering through the roof, runs down the walls, and has cemented the angular fragments of limestone with bones and shells into a breccia, which, when the rubble and soil were removed, stood out like shelves or brackets from the sides; in some places nearly meeting in the middle, and so rendering it impossible to work near the sides without partially destroying them.

Under these shelves of breccia, and at depths varying from two to five feet below the uppermost, we found the remains of at least six human beings, bones of oxen, goat, sheep (?), horse, dog, swine, roebuck, shells of oyster, limpet, mussel, cockle, whelk, periwinkle, two fragments of coarse pottery, a bone needle, a portion of another bone instrument, a fine hornstone scraper, formed of the same green stone, flakes of which were found in the Hoyle by Mr. Smith, a water-worn sandstone, about eight inches long, which, from its shape and the bruises on it, would seem to have been used as a hammer, several flint flakes, several water-worn sandstones, both red and grey, two ironstones, and several white water-worn quartz pebbles.

These various substances, with the exception of the scraper

and needle, were contained in two different heaps of black vegetable mould, mixed with broken shells, bones, and angular fragments of limestone.

The needle and the scraper were on the surface of the clay immediately underlying the outskirts of the larger heap, and near where Mr. Winwood had previously dug; not far from these, and also on the surface of the clay, there was a small deposit of charcoal. After removing the refuse-heap, another opening to the cave was revealed, leading into a depression, or roofless chamber.

We found, on digging in this outside pit, a sort of path, almost paved with shells, and leading up to the surface of the field; near to the top of this path there was a piece of iron slag and a considerable fragment of a Roman patera, similar, I suppose, to that found by Mr. Winwood on the surface of the breccia, but very different to those dug from the middle of the heap by us.

Now, as regards the objects accumulated in the midden.

With scarcely an exception the bones were broken, and in no instance were they in position as they would occur after burial. On at least one there are the marks of a cutting instrument (vertebra of bos), many are split, and some burnt. But none, so far as I could see, were marked with teeth scores.

The bones of man and beast were mixed up in a confused heap with shells, stones, black earth, and pottery in a sort of hotch-potch. The impression left on my mind is that these bones were *all broken by man for food*.

A few words as regards the remains themselves.

The ox bones have belonged to many individuals, and were, without exception, *Bos longifrons*. This is the more interesting, as the modern Pembrokeshire cattle have been pronounced by Messrs. Darwin and Rütimeyer to be one of the domestic types which are in direct descent from *Bos primigenius*. I have, in my possession, some oxen's skulls, which were dug up in the town of Tenby, together with a coin of Vespasian, these are, some of them, *Bos longifrons*, but others resemble the modern Castlemartin oxen of Pembrokeshire. The bones clearly distinguishable as goat are small.

Those which may be sheep or goat would be about the size of the modern Welsh mutton.

The dog, of which there are portions of several individuals (a perfect cranium being one of the few unbroken bones), must have been a formidable beast.

I compared the head with the skull of a very large St. Bernard, and the cave dog was the bigger of the two.

The swine, also, were very large, perhaps the ancestors of our

modern Welsh pigs, which are sometimes as big as a small donkey, with ears like a newspaper. Or, peradventure, they may have resembled the old Irish greyhound breed which had wattles under the chin.

Of the horse, there are but slight remains, and not of more than one individual; it seems to me to have been a pony of about fourteen hands.

Of the roebuck, there is but one horn.

Fox, badger, polecat, hare, rabbit, and bird bones, were, also, present on the outskirts of the heap; but these I put no trust in, thinking them to be recent.

There were a very great quantity of oyster and limpet shells, many marked with fire, but some of the former unopened.

The other shells, altogether, did not amount to a dozen specimens. The two fragments of pottery were very rough, and totally different from the Roman ware found above-ground. They seem to have been turned on a wheel, and one is marked with latitudinal lines.

The needle is a beautifully perfect implement,  $3\frac{1}{2}$  inches long, with an eye, it would seem, to have been cut from the shin-bone of an ox, and nicely polished. The broken implement may, I think, have been a borer, but this is only conjectural.

The scraper is chipped out of the same green horn stone, numerous flakes of which were found in the Hoyle by Mr. Smith.

The chips are of ordinary flint.

The human remains consist of the lower jaw-bone of a person in the prime of life, the right squamosal of a skull, and an atlas.

These were taken from the outskirt of the heap, and near the spot whence I fancy Mr. Winwood dug the vertebræ in 1866.

From out of the heap itself (the skulls, generally, being low, the other bones scattered all through), were taken, the portion of a lower jaw, the wisdom-tooth not being cut. Two others in the prime of life, and two older jaws. The teeth were all worn on the outer edge, slightly in the younger, and very much in the older ones.

I also found scattered fragments of a dolicocephalic skull, which I have pieced together so as to make the cranium nearly perfect from the superciliary ridges to the occiput; there were, also, fragments of other skulls (form unknown). Two astragali, right and left (very small), first phalanx of a little finger (very small), heads of three femurs, end of right humerus and fragment of shaft of humerus, head of left ulna, and piece of left clavicle.

From comparison with recent bones, it will be seen at a glance that these remains must have belonged to a very small

people; and as both Kelt and Scandinavian were a large-boned people, the former being also brachycephalic, I would venture to suggest that in this cave we may have found the dwelling-place of an allophyllian people, perhaps members of that Iberian tribe whom the Romans found established in South Wales, and whom the Welsh called Gwyddels or wild men of the woods, and afterwards seem to have confounded with their own Gadhelic cousins.

Judging from what we find in this cave, they were unacquainted with the use of metal, but turned pottery on a wheel. They were herdsmen, having oxen, goats, sheep (?), pigs, and for the protection of themselves and their flocks they kept a large breed of dogs; and that these beasts did sharp service on occasion may be seen from the marks of a severe wound on the canine skull which I discovered.

The only hunting trophy found in this cave was a roebuck's horn; without, indeed, the horse was a beast of chase.

But in an adjoining cave were brown bear teeth and bones, with the remains of man, ox, sheep or goat, dog, swine, and a flint flake.

Our troglodytes would seem to have been longshore fishermen, and greatly to have preferred oysters and limpets to other shell-fish.

With regard to the charge of cannibalism I have brought against this people, it must be remembered that Diodorus, on hearsay evidence, declares that the Britanni of Irin were anthropophagi. History and tradition both continually associate Southern Ireland and South-West Wales.

Formerly the base of the limestone rock in which these caves are placed, must have been washed by the sea; but it has been expelled by several concurrent causes.

First and chief, the gradual uplifting of the land, which is shown by an old beach raised some dozen feet above high-water mark. A very good specimen of this old shore may be seen above Merlin's Cave, on the South Sands, Tenby. Fragments of it also exist near the limestone quarries on Giltar Head.

Secondly by drift sand which continues to accumulate to a great extent on the neighbouring burrows.

Thirdly, by alluvial deposit. Just under the Longberry Bank, there are brickworks, and the proprietor informs me that under ten feet of clay (exactly resembling that found by me in the second cave I mentioned), he comes to sea-sand and shells.

Fourthly, by man. Two embankments have been made at different times for the purpose of reclamation, and lately a railway bank has been added to the defences.

That the difference in level has been in progress during recent

years is also proved by some ruined cottages of the kind called Flemish. These are known as "Old Quay," though they are now at least two miles from the sea.

#### DISCUSSION.

In the discussion on the above papers, Mr. MOGGRIDGE said: Kitchen middens are still forming. One that occurs to me at this moment is within sight of Tenby, but on the eastern side of the bay at the village of Penclawd, in Gower. Its inhabitants live chiefly on the produce of the sea; and shells (especially those of the cockle) with other refuse accumulate, forming a large and growing heap.

As the caverns near Tenby and the remains found therein were spoken of in the paper, I may mention that the peninsula of Gower affords numerous caves rich in the bones of *Ursus spelæus* and others of those animals known as the "extinct." At the exploration of some of these I assisted: perhaps the most satisfactory was Bacon Hole (so called from a stalactitic mass resembling a ham), because we had here a continuous floor of stalagmite averaging 14 inches in thickness; stamping with considerable antiquity all that was found beneath it.

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The following paper was then read:—

*On the BRAINWEIGHTS of some CHINESE and PELEW ISLANDERS.*  
By Dr. CROCHLEY CLAPHAM.

In a paper which I wrote some time ago on the Weight of the Brain in the Insane (West Riding Asylum Report, vol. iii, 1873), I showed that the mere weight of the brain in this class of patients was fully equal to, if not greater than, that obtaining amongst sane individuals of all classes outside asylum practice.

From the facts which presented themselves to my notice whilst engaged in the above researches, I was induced to adopt Wagner's conclusion that "superiority of size of brain cannot be regarded as a constant accompaniment of superiority of intellect," and I am now prepared to present some further illustrations of the truth of this conclusion.

In the paper above referred to, I showed that the weight of the encephalon in 716 cases of insanity, of all ages and both sexes, was 46·285 ounces avoirdupois; for males alone 48·149 oz., and for females alone 43·872 oz.; with a male maximum of 61 ounces and a female maximum of 56 ounces. These figures are higher than those deduced by Dr. Robert Boyd from an examination of 2,086 sane brains (Philosophical Transactions, 1860). I may state here that my tables now include 1,200 in-



sane brains, and that the previous estimate is not affected by the addition. The remaining 484 brainweights will be published at an early date.

The above figures relating to the insane have considerable significance, when taken in connection with the fact that all the cases were drawn from the pauper, and therefore presumably the least intellectual, stratum of society.

The cases I have now to advance comprise 16 Chinese, 4 Pelew Islanders, and one Bengalee constable, whose brains I weighed with much care, eliminating as far as possible all elements of fallacy, the ventricles being tapped and the brain substance allowed thoroughly to drain itself before being placed on the scales. Of the 16 Chinese 15 were victims to the fury of the great Typhoon which raged in Hong-Kong September 22-23, 1874, and the remaining one was the celebrated "Spark" pirate who was executed about the same time. Five were females and eleven males, and with the exception of one individual, they all belonged to the "Coolie" or lowest grade of Chinese society.

On account of the excitement consequent on the state of Hong-Kong after the typhoon, I was unable to get any particulars as to age, and had to judge to the best of my ability from the appearance of each individual as to his or her probable age, which must therefore be taken as only an approximation to the truth.

The following is a table of the weights (Chinese brains) :—

Case.	Probable age.	Enceph.	C. P. and M.	Case.	Probable age.	Enceph.	C. P. and M.
	Years.	oz.	oz.		Years.	oz.	oz.
1	30	49½	6½	9	55	49½	6
2	28	50	5½	10	35	51½	6½
3	45	53½	5½	11	30	46½	5½
4	40	56	6½	12	26	45½	6
5	50	49½	6	13	38	49	5½
6	40	48	5½	14	30	44	5½
7	25	46½	5½	15	70	42½	5½
8	48	54	6½	16	18	46½	5½

From the foregoing table I gather that the average weight of the encephalon in the 16 cases (men and women) was 48·890, &c., ounces; for men alone 50·45 ounces, and for women alone 45·45 ounces, with a male maximum brain of 56 ounces, and a female maximum brain of 49 ounces.

The cerebellum, pons varolii and medulla oblongata, which are represented in the table by the letters C P and M, were weighed



together in each case and show an average, for the sixteen, of 5·796, &c., ounces ; for males alone 5·90 ounces, and for females alone 5·55 ounces.

An average taken of the ascribed ages shows a male average of 38·72 years, and a female average of 36·4 years.

The average proportion which the cerebellum, pons, and medulla bear to the encephalon is in the case of males as 1 is to 8·538, and in the case of females as 1 to 8·189.

The *Pelew Islanders* whose brains I examined, were four out of a canoeful of these people who were driven out to sea whilst fishing, and having lost their reckoning were picked up in a starving condition by a passing vessel and brought to Hong-Kong. They were taken care of by the Government, and the survivors ultimately returned to their homes. In the meantime the ones in whom we are interested died in the Government Civil Hospital, and were subjected by me to careful *post-mortem* examination. They were all males, and all died of pulmonary disease.

Case.	Age.	Enceph.	C. P. and M.	Case.	Age.	Enceph.	C. P. and M.
	Years.	oz.	oz.		Years.	oz.	oz.
1	32	48½	6½	3	25	49	5½
2	40	48	6	4	36	52	5½

This table furnishes an average encephalon of 49·375 ounces, and a C. P. and M. average of 5·875 ounces for an average age of 33·25 years.

The ratio of the C. P. and M. to the encephalon is as 1 to 8·404.

The Bengalee constable had an encephalon of 54 ounces, and C. P. and M. of 6½ ounces, which is in the proportion of 1 to 8.

Judged by the popular standard of weight of brain for wealth of wit, these people should all have been possessed of superior intellectual powers. The Chinese males should have been at least Mandarins, and the Pelew Islanders should surely have held high posts in the government of the limited kingdom of Pelew. But upon examining the brains more carefully, the solution of the problem involved in the want of correspondence between the capacity of the skull and capacity of intellect was at once rendered apparent. The primary convolutions of the cerebrum were too well defined, there being a marked deficiency in the number and depth of the secondary gyri, and an almost Simian symmetry of the two hemispheres—this was especially the case in the Pelew brains. In other respects the brains were

fairly developed, the frontal lobes projecting anteriorly well beyond the olfactory bulbs, and the occipital lobes covering the cerebellum. In the Pelews, however, the temporo-sphenoidal lobes were rather short, and the island of Reil more than usually visible.

Although destitute of any means of accurately measuring the depth of the grey matter of the cerebral convolutions, I am convinced that it was appreciably shallower than is the same structure in the average European.

Of course of the amount of intellect displayed during life by the 16 Chinese whose brains I weighed I can say nothing, but judging by their fellows of the same order, I am I think justified in placing it very far down on the intellectual scale at least as regards *acquirements*. Of the *capacity* of the Chinese coolie class for learning I am not inclined to speak so lightly, but on the contrary, am convinced of their natural aptitude in this direction.

The skulls of the Pelew islanders were markedly dolichocephalic. One, of which I preserved the measure, was 7.4 inches in its greatest length, and 5.5 inches in its greatest breadth, being in the proportion of 74 to the length taken as 100. All my other measurements, together with two of the Pelew skulls which I cleaned and carefully preserved, were lost at sea in the wreck of the "Mongol," much to my chagrin.

The Pelews were rather short, slight men, with fair muscular development, good teeth, and presenting quite an orthognathous profile.

The hair was dry, harsh and frizzy, standing up from the head in one case as much as 18 inches. The nose was straight, and the tip prolonged downwards beyond the *alæ nasi* after the Papuan manner. No hair on face. The lower extremities were tattooed closely in a geometrical pattern from the middle of the thigh to the middle or lower third of the leg. The ears were slit for ornaments, and had evidently sustained heavy ones, as they were much elongated and distorted. Their favourite posture was squatting, and they showed a rooted objection to remain covered up in bed.

The only explanation which I can offer of the large size of the brain in these cases is that it was essentially musculomotor in function,—the Chinese especially being very liberally endowed by nature with muscular tissue, much more so indeed than any European nation;—that it was in no wise an index of the amount of intelligence possessed is, I think, sufficiently clear.

## DISCUSSION.

Mr. DISTANT:—This short paper is a valuable one in anthropology, as every fresh fact which bears upon the average weight of brains of other races of mankind is greatly to be desiderated. The brain weights of these 16 Chinese men and women are exceedingly interesting in two respects. Firstly, the general height of the average weight, and, secondly, which interests me the more, the considerable difference between the weights of the male and female brains, a subject I have already had the honour of bringing before the Institute. Both these facts are somewhat inter-dependent, as it seems now well established that there is a greater difference between the average weight of the male and female brain in the larger brained peoples of civilised areas than exists between the sexes in the smaller brained or more uncultivated and primitive races. This cannot be ascribed to the physical conformity of savages being more on an equality between the sexes. Professor Rolleston, in his paper on "The People of the Long Barrow Period," describes their skeletons as exhibiting in the males an height of about 5 ft. 6 in., as against a height of 4 ft. 10 in. attained by the females. A similar disproportion may be seen between the sexes of the Andamanese, as shown in the plates to Dr. Dobson's paper in our Journal, and further evidence of the same kind can be found by any one who cares to search for it. These tables being actually weights of brains, and not merely capacities of skulls, are the more valuable on that account, but the average appears very high, which for these 16 Chinese is—

For men	50.45 oz.	} Mean of series 48.89 oz.
„ women	45.45 „	

Now the researches of Dr. Barnard Davis on 33 Chinese skulls, made by filling those crania with sand, which was afterwards weighed, with an allowance of 15 per cent. for drainage, &c., was—

For 25 men	47.87 oz.	} Mean of series 47.00 oz.
„ 8 women	43.71 „	

This shows not only a lighter average, but also, as is usual in such cases, a less disproportion between the sexes, but there can be little doubt that racial types of brain weights are valuable in relation to the extent of the series from which they have been made. As regards the great weights of these 16 Chinese brains, which Dr. Clapham tells us have a somewhat Simian superficiality, we must remember that the average is the result of a short series, and that whereas no great mental work has been found to be achieved by a brain below the average in development, yet a large brain may exist without being the organ of uncommon intelligence and mental power. I will merely express a hope that the cause of physical anthropology may be advanced by more papers of this kind, written by equally competent observers.

Mr. MOGGRIDGE: The intellectual capacity does not, I believe, depend so much upon the size of the brain as upon the number of its convolutions. Very low down in creation the earliest manifestation of brain occurs in a simple thread of grey matter. The first advance is indicated by the formation of ganglia, *i.e.*, swellings out of that thread at certain distances. Rising still in the scale, the head becomes the receptacle of the brain. Finally that mass of brain is convoluted, and the greater the number of those windings and turnings, the greater the opportunity naturally afforded for the development of the intellect.

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*On RIGHTHANDEDNESS.* By Mr. SHAW.

IF asked what part of the body seems chiefly affected by advancing civilisation, I should be inclined to reply that it is the right hand.

At first sight the four-handed mammals may be thought to have an advantage; but because four hands are employed both for prehension and locomotion, while in man there is one pair of organs for each; man's two hands are worth more than the ape's four. As man rises from the rudest stages—such as digging roots, hunting, and tending cattle, to arts which are highly mechanical—the right hand becomes a more special and serviceable organ than the left, so that the loss of it to an engraver, a clerk, or an artist, would be a much more serious affair than it would be to a drover, who could clutch his stick or gesticulate to his dog almost as well with the one as the other. Admitting that, physiologically, there is a slight reason for the preference of the right hand; all our tools and fashions lend themselves to encourage its further dexterity. Screws, gimlets, &c., are made to suit the supinating motion of the right hand. Tools of the scissor kind are also made of the right hand, and I have seen a print-cutter's gauge made specially for a left-handed person fetch a very low price when it came to be sold. The slant in writing, the shed of the hair in boys, the place of buttons and hooks in clothes, and the system of writing from left to right, all seem related to right-handedness.

In drawing, the pupil is recommended to begin at the uppermost corner of the left hand, where the ornament is of a small and repeating character, so as to avoid fingering the part already finished. I used to be able to detect my left-handed boys when learning to write, if they had used the left hand against orders, by the writing either being straight or slanted the wrong way. Most boys know that it is easier drawing a

profile with the face looking towards the left hand; yet in looking over the hieroglyphs in the British Museum the faces will be generally found towards the right.

I believe there is a constitutional reason for the preference given to the right hand, but I also believe that habit has strengthened nature's tendency, and that as the touch of the hereditary Hindoo weaver has become proverbially fine, and his eyes short sighted, so the aptitude of the right hand over the left is greater with advancing civilisation, than in a state utterly savage. At that period of a child's life, when creeping seems a more natural mode of progression than walking, there is no apparent dexterity of the right hand more than the left, and when man was almost without arts, I can believe his state to have been very nearly ambi-dexter, or perhaps rather ambi-sinister.

The elephant has been known to employ one tusk more than another in rooting, &c. It is on that account called by the Arabs the "servant," and is not so much esteemed by the traders as being oftener broken or mutilated.

When I asked Sir Samuel Baker which tusk, the right or the left, went by the name of servant, he informed me that it was the right tusk generally, but the exceptions to the rule were far more numerous than was the exception of lefthandedness with human beings.

We have no reliable statistics of the proportion of lefthanded to right, either among ancients or moderns. If Judges xx, 15, 16 is to have any weight in the matter, the proportion of left-handed in the tribe of Benjamin seems to have been greater than at the present day.

Lefthandedness is very mysterious. It seems to set itself quite against physiological deductions and the whole tendency of art and fashion.

Prof. Buchanan of Glasgow, who wrote an able memoir on Righthandedness, in 1862, thinks that lefthandedness may be due to transposition of the viscera, and tells me that Dr. Aitken found such a case. But surely transposition of the viscera must be far rarer than obstinate lefthandedness. In cases of left-handed persons which I have examined, the limbs of the left side were proportionally larger, just as those of the right side are in normal cases. The greater aptitude as well as size of the left foot was also to be noted, as well as the fact of the exception being hereditary. I may mention in opposition to Professor Buchanan's theory of transposition of the viscera, or at least of the great arteries of the upper limbs accounting for lefthandedness, that several cases of transposition of viscera are recorded in which the persons affected were righthanded.



## DISCUSSION.

MR. DISTANT: Though righthandedness is hereditary and almost universal, there is considerable doubt whether it is not nevertheless a positive disadvantage to the development of the race. From the researches of Dr. Brown-Sequard in particular, we know that the power of reasoning depends upon the left side of the brain more than on the right; an injury to the left side of the brain being more or less fatal to proper reasoning, as a lesion on that side is also concomitant with *aphasia*. The left side of the brain is also superior in size, and receives a larger share of blood than the right. The emotional faculties are likewise shown to be centred in the right side of the brain, as the reasoning powers are in the left. It is scarcely necessary to repeat the well-known physiological fact that the two sides of the brain and the two sides of the body react on each other from opposite sides. Now in exercising principally the right side of the body, Dr. Sequard considers we develop principally the left side of the brain, which thus becomes the chief controlling centre, whilst if the left side of the body was used in an equal proportion to the right, the two sides of the brain would be equally developed, and who can doubt that such must be a positive advantage to the race. The question of righthandedness is thus a deeper one than that of mere hereditary habit, and touches that truly anthropological subject *intelligence*, its limits and its causes, of which we still know so little.

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*Memoir on the MENTAL PROGRESS OF ANIMALS during the HUMAN PERIOD.* By MR. SHAW.

VERY effective rhetorical passages could be selected from our classical writers elucidating the change wrought by the human race on the face of nature. Certainly the contrast of seas over-spread with ships; lands intersected by railways, roads, and canals, or covered with arable fields and towering cities, is, compared to uncultivated heath, primæval forest, and lonely sea, a very vivid one.

But it is not so much the change wrought by our race on mountains, seas, and rocks of adamant, as the change effected by man on the forms of life that is most to be wondered at. The relation of organism to organism is a relation the importance of which can scarcely be understated.

It is a common belief that the instincts and intelligence of the lower animals is, within certain narrow limits, fixed, unchangeable, and unprogressive. Such statements take too much for granted. The conclusion from many facts gleaned in connection with the subject point differently. The relative size of



skull of many of the earlier and middle tertiary quadrupeds to that of their existing representatives, warrants us in concluding that the former had less brain-power.

Much of what we term cunning in the mental disposition of animals will be found to have been sharpened and made tangible in quadrupeds and birds, owing to the new necessities imposed upon them by man the tamer, or man the destroyer.

For it is under one of these two characters that man approaches animals, affecting them in the most complex and vivid manner. No bird or quadruped with the docility and tractability of the dog, with the highly susceptible and generous nature of the horse, and the wariness and boldness of the fox, rat, rook, or sparrow, has been found in the lonely oceanic isles, or in the untrodden prairie or forest, free, or all but free from human influence. This is not because in these quarters such animals could not exist, for after being imported thither, as the horse into South America, or the rat in New Zealand, they have thriven and multiplied, but because the original fauna had no opportunity for the improvement of its wits by coming in contact with an enemy or friend so complex, so dreadful, and so ingenious as a human being.

One of the first impulses communicated to the wits of wild animals is that derived from the sense of new wants. Now, this is what man supplies by the cultivation of his fruits and cereals. A feast is spread before quadrupeds and birds, richer and more nutritious than that supplied by the frugal hand of nature. But this banquet is guarded by its possessor, and often becomes a baited trap in which the simple thief is caught and perishes. With the more sagacious robber the matter is different.

A very slight increment of sagacity is often enough to turn the scale, and this quickness of wit is again met by improvement of trap. Both improvements go on slowly. Necessity on the side of the wild quadruped and on the side of the savage is the mother of invention. Gradually wary, vigilant animals, as having the best chance of surviving, hang round the skirts of kraals and wigwams, approach in twilight the crops near stockaded villages, prowl about places of interment, lodge in sewers, enter cellars; and, keenly alive to every sign of danger, multiply in spite of poison, trap, and gun, and in spite of trained animals of its own and allied species, and of that division of labour which gives us special hunters. It is these two conditions—man enlarging the means of livelihood, and at the same time more keenly aiming at the life of those who would share his harvest—that gives a new importance to brute cunning, an importance which could not be of such primal consequence in a



world of comparatively stupid creatures in a world into which man had not yet arrived.

The fear of man is a slowly-acquired instinct, both by birds and mammals. Travellers in South America have struck down strong-winged birds from trees with poles. I recollect the shyness of a pack of seals basking on the long low rocks of the coast of West Kilbride, Ayrshire. They plunged into the ocean long before I could approach near enough to observe their habits. How different from this were the seals observed by members of the Challenger Expedition in the lonely oceanic isles, who gambolled with their calves, allowing the stranger's foot almost to be set upon them. The wolf-like dog of the Falkland Islands came quite near the crew of Byron's vessel. Compare these stupid traits with the admirably organised plundering expeditions of the Abyssinian baboons—the nocturnal adventures of elephants in quest of water in the dry season, or the rude laws and customs known and acted upon, for self-preservation, of the half-wild dogs of Constantinople, the Peninsula, and the East, wherein the care of the weak and young, the usefulness of sentries, the value of signals, and the difference between sham and real danger seem all to be understood.

These depredators know the usefulness of confusing traces of retreat and the value of a strong or inaccessible city of refuge.

In these circumstances it seems safe to conclude that man the thinker is at the bottom of their wiles, and that his acuteness has sharpened the faculties of his foes.

Hitherto we have glanced chiefly at wild or partially domesticated animals, and when we turn to our domesticated animals we can dimly see how slow the process and how immense the pains by which they have been tamed, from the time when our far remote ancestors instinctively killed the wilder and more troublesome ones, and preserved the most easily managed, just as Galton saw in Africa at the present day, that the irreclaimably wild beasts of a flock escaped or were utterly lost, those a little less wild were selected for slaughter, and those which seldom ran away, that kept the flocks together, and led them homewards, were longer preserved alive and had better chance to become parents of stock and bequeath their aptitudes to the future herd. The dog is perhaps the wisest of quadrupeds, and certainly his wisdom bulks in most considerations of his price. Old shepherds in my own pastoral district have expressed to me a conviction that the sheep-dog, even within the present century, from careful selecting, has become more docile and intelligent. Yet in other conditions, as in China, where the dog is kept like the pig for the table, he is said to be quite a stupid animal. An idiot cow may be tolerated in a dairy, though

even with such a one there is trouble scarcely worth its milk; but an idiot collie is nowhere. Our domestic list of mammals, from having been acted upon by special circumstances, exhibits the highest brutal attainments, and none of them are so brutally degraded, or slow even at learning their names, as those caged from the untrodden forests.

In conclusion, were we in vision to behold that wonderful Miocene Age, when as yet no traces of man have been found on the planet, when vines and magnolias grew in Greenland, and long-armed apes traversed the forest of Europe, we should be warranted in believing that in their habits and manners of life, the higher birds and quadrupeds would be more uniform and less interesting than their surviving representatives who have been for ages exposed to the struggle for life with man. In the prehuman world there would be a dull monotony of hunger, fight, flight, and feeding—wherein the horn, the mailed coat, the heavy hoof and sharpened talons, and, above all, the terrible beak or tooth, would do work now accomplished by slyer agencies. Nor have brutes come out of the combat sole gainers in genius. Man has learned something from their ways. In the myths of nations their opposition made the earliest of heroes. Man's supreme faculty of language, so that now he can speak by telegraph, is also, ever widening the gulf which separates him from those inferior beings, whose docility he has developed, and whose cunning he has so gradually evoked.

Colonel Lane Fox, Mr. Hyde Clarke and others offered some remarks.

The meeting then separated.

## ANTHROPOLOGICAL MISCELLANEA.

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IN vol. v of the Journal of the Anthropological Institute, at page 408, *et seq.*, an account was given of a leaf-wearing race surviving on the Western Coast of India. As supplementary to that account, the following extracts from Col. Dalton's "Ethnology of Bengal," describing an apparently still more primitive leaf-wearing tribe, are of much anthropological interest. The Juangs are a tribe found in the most secluded tracts of Persia, speaking a language of the Kolarian family. Col. Dalton says of them: "The Juangs are in habits and customs the most primitive people I have met with or read of. They occupy a hill-country, in which stone implements, the earliest specimens of human ingenuity that we possess, are still occasionally found; and though they have now abandoned the use of such implements, it is not improbable that they are the direct descendants of those ancient stone-cutters, and that we have in the Juangs representatives of the stone age *in situ*."

"Until foreigners came amongst them, they must have used such weapons or none; for they had no knowledge whatever of metals. They have no word in their own language for iron or other metals. They neither spin nor weave, nor have they ever attained to the simplest knowledge of pottery. Their huts are amongst the smallest that human beings ever deliberately constructed as dwellings, measuring about 6 feet by 8, and very low, and even this scanty interior is divided into two compartments, one of which is the store-room. The Juangs cultivate in the rudest way, and in regard to food are not in the least particular, eating mice, rats, monkeys, tigers, bears, snakes, frogs, and even offal.

"The females had not amongst them a particle of clothing; their sole covering for purposes of decency consisted of a girdle composed of several strings of beads, from which depended before and behind small curtains of leaves. Adam and Eve sewed fig-leaves together and made themselves aprons. The Juangs are not so far advanced; they take young shoots of the Asan (*Terminalia tomentosa*), or any tree with long, soft leaves, and arranging them so as to form a flat and scale-like surface of the required size; the sprigs are simply stuck in the girdle, fore and aft, and the toilet is complete. The girls were well developed and finely formed, and as the light, leafy costume left the outlines of the figure entirely nude, they would have made good studies for a sculptor.

"They made their first appearance by night and danced by torch-light; it was a wild and weird sight. The men sang as they danced, accompanying themselves on deep-sounding tambourines;

the girls holding hands and circling round them in a solemnly-grotesque manner. The disarrangement of their leaves was a source of great anxiety to them, compelling them frequently to fall out of their places and retreat into the darkness to adjust their plumage.

"Next day they came to my tent at noon, and whilst I conversed with the males on their customs, language, and religion, the girls sat nestled in a corner together, for a long time silent and motionless, but after an hour or two had elapsed, the crouching nymphs showed signs of life and symptoms of uneasiness; and more attentively regarding them, I found that great tears were dropping from the downcast-eyes, like dew-drops, on the green leaves. On my tenderly seeking the cause of their distress, I was told the leaves were becoming dry, stiff, and uncomfortable, and if they were not allowed to go to the woods for a change, the consequence would be serious, and they certainly could not dance. It was a hot, dry day, and the crisp rustling as they arose to depart confirmed the statement.

"When they returned, arrayed in fresh leaves, we induced them to perform a variety of sportive dances, some quite dramatic in effect, and it was altogether a most interesting 'ballet.' In one figure the girls moved round in single file, keeping the right hand on the right shoulder of the girl in front; in another with bodies inclined, they wreathed their arms and advanced and retreated in line. Then we had the bear dance. The girls, acting independently, advance with bodies so much inclined, that their hands touch the ground: thus they move not unlike bears, and by a motion from the knees the bodies wriggle violently, and the broad tails of green leaves flap up and down in a most ludicrous manner.

"The pigeon dance followed. The action of a love-making-pigeon when he struts, pouts, sticks out his breast, and scrapes the ground with his wings, was well imitated, the hands of the girls doing duty as wings. They concluded with the vulture dance—a highly dramatic finale. One of the men was made to lie on the ground and represent a dead body. The girls, in approaching it, imitated the hopping sidling advance of the bird of prey, and, using their hands as beaks, nipped and pinched the pseudo-corpse in a manner that made him occasionally forget his character and yell with pain. This caused great amusement to his tormentors. In the evening, seeing the women return from work with dishevelled hair, dusty bodies, and disordered attire, *i.e.*, leaves somewhat withered, was like a dream of the stone age, but each lady brought back with her fresh material for her evening dress.

"The Juangs have no terms for 'God,' for 'heaven,' or 'hell,' and, so far as I can learn, no idea of a future state. They offer fowls to the sun when in distress, and to the earth to give them its fruits in due season; they have no obligatory religious ceremonies. The Juangs are divided into tribes and exogamous. They burn their dead and throw the ashes into any running stream; but erect no monuments, and have no notion of the worship of ancestors;



their mourning is an abstinence of three days from flesh and salt. They swear on earth taken from an ant-hill—a sacred object—and on a tiger-skin.”

There are several stories to account for their leaf-wearing habits, but apparently of Brahmanical concoction, told for the Juangs rather than by them. Their own idea simply is, that the fashion of dress should never change, and that for women it should be simple and cheap. The males have, however, abandoned leaves of late, and use in lieu the smallest quantity of cotton cloth that can be made to serve the purposes of decency. They appeared to Col. Dalton the most primitive of all the tribes he encountered, and he seems to think that in them we have a veritable survival and example of a prehistoric people, *in situ*, as he expresses it.

#### DISCOVERY of a DUG-OUT CANOE in the THAMES at HAMPTON COURT.

TOWARDS the commencement of the present month, June, 1877, a boatman of the name of Walford fishing in the river just opposite Hampton Court Palace discovered a large block of wood, as it appeared to him, embedded in the river bottom, near the bank on the side opposite to the palace. Being very familiar with this part of the river on account of his boats being kept for hire on the opposite side, and knowing that the block in question must be a new arrival in this spot, he determined to hawl it up. He had repeatedly sounded the river bottom in all directions, and nothing of the kind had attracted his observation up to that time; the block in question must, therefore, have been recently uncovered or must have been washed there from some part of the river higher up. On bringing it to the surface it was found to be part of a canoe of oak dug out of the solid tree, and in an advanced state of decay. Some portions were wanting, but sufficient remained to determine its size and form. Having heard of the discovery through the kindness of Lord Arthur Russell, M.P., I went to see it on the 29th of the month, about three weeks after its discovery. It is flat-bottomed, the bottom rising slightly towards the front and stern, the bow is rounded, the stern has evidently been square, but the back-piece is wanting; the sides are perpendicular, 15 inches in height, interior measurement, and the top has been level from end to end, not rising at the bow or stern; the greatest width, interior measurement, taken along the flat-bottom, is 2 feet 6 inches, but this diminishes in front to 2 feet at the place where the scooped out bow commences.

One side only is perfect from the bow for a distance of about two-thirds of its length, the whole of the starboard side is deficient except at the bottom; the sides and bottom are about 2 inches in



thickness; the stern is strengthened along the bottom at 1 foot from the end by a raised ridge or "knee," 3 inches in width by  $1\frac{1}{2}$  in height, carved out of the solid; whether this ridge ascended the sides or not cannot now be ascertained, as the sides are wanting in this part; towards the bow on the perfect side, at about 2 inches from the top, is a circular hole 2 inches in diameter, which may have been used to fasten a stay, or may have served for the loop of a rowlock. The total length of the vessel from stem to stern is 14 feet, and the whole is carved out of one piece. The surface of the oak having been exposed to the sun for some time, was cracked and peeled so that it was impossible to discover any marks of the tool by which the interior had been excavated, and it is to be feared that further damage may be caused by exposure. Canoes of this form have been occasionally found elsewhere, and Sir William Wilde mentions the form with the rounded bow and square stern as one of three varieties that are frequently found in Ireland. The ridge curved out of the solid, appears to be common to all the forms, and was, no doubt, intended to give strength.

The original position of the canoe is not difficult to determine. The river between the bridge and the palace makes a re-entering bend on the south side just below the spot where the Mole runs in. Large quantities of the delta ground at the point were washed away last winter by an unusually strong flood, and there can be little doubt that the canoe which had originally grounded and become covered at the point, had then been washed down with the earth for a distance of about 100 yards into the place in which it was discovered. Walford also informs me that when the water is low, two rows of piles may be seen in the bottom, crossing the river, one at the point and the other at the spot near which the canoe was found. Many flint and stone celts, he tells me, have in his time also been found at this spot, showing that, in all probability, this place was much frequented during the stone age, or, at any rate, the age in which stone implements continued in use,\* and proving, as in so many other instances of prehistoric discoveries in the Thames, that the river has changed its course but little, if at all, since that remote period. The bearing of this upon the question of the erosion of valleys by their rivers is important, and any evidence which tends to throw light on the length of time that rivers have flowed in the same channels, is worthy of record on this account, apart from the archæological interest that may attach to the objects discovered.

A. LANE FOX.

\* My informant described these implements in such a manner as to leave no doubt of their being Celts, and stated that they were, to the best of his belief, found only in this spot.—A. L. F.

*The ANCIENT BURIAL GROUND at KINTBURY.*

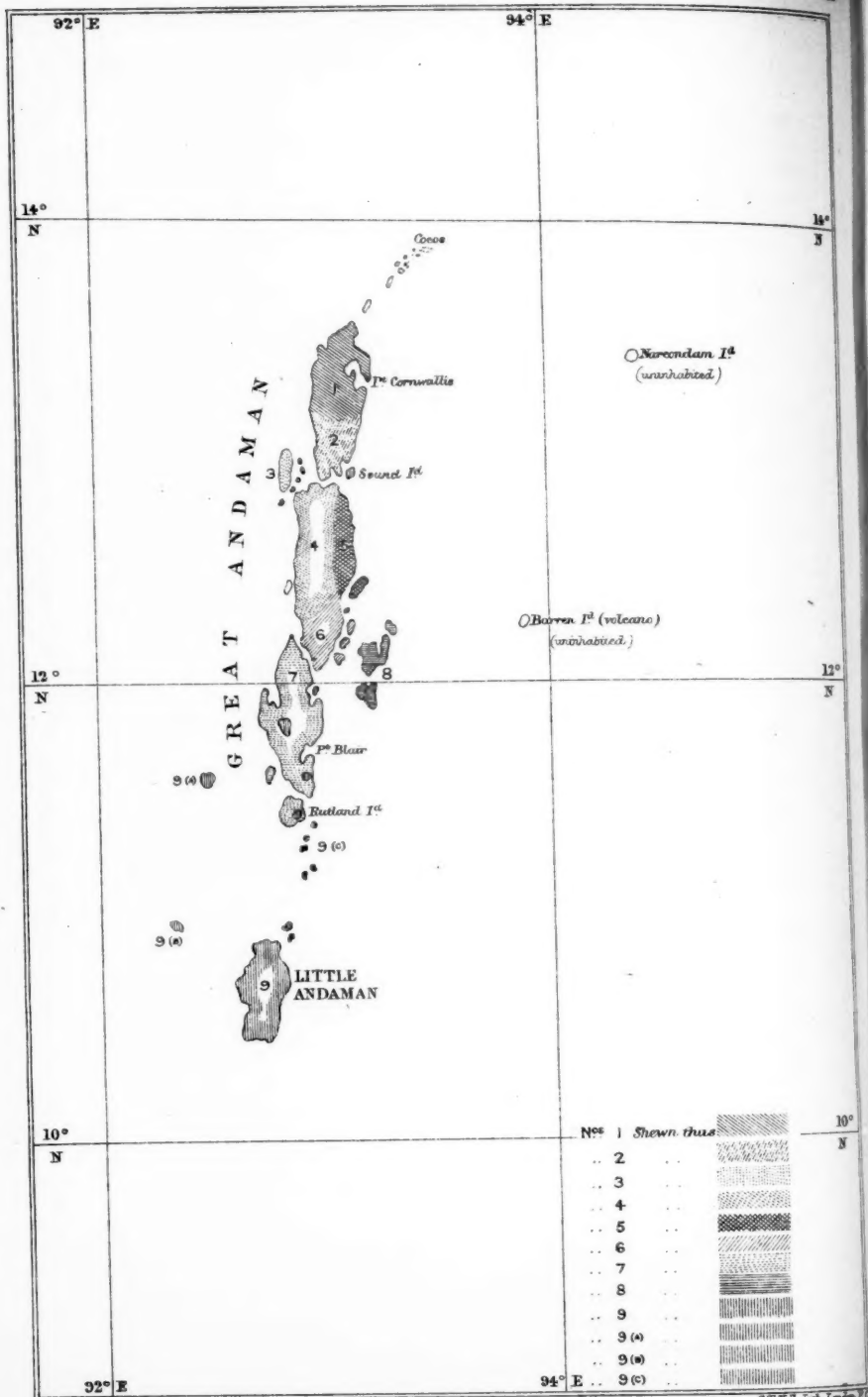
A NOTICE of the ancient burying-ground at Kintbury by Professor Rupert Jones having appeared in the *Journal*, vol. vi, p. 196, the following account of a further examination of the cemetery by Mr. Walter Money of Newbury has been communicated by Prof. Rupert Jones.

These graves, which are cut in the chalk, appear to have extended over the whole area between the present footpath and the River Kennet. The greater part has now been excavated. As mentioned by Professor Jones, the graves were sunk to the depth of about 3 feet. Since that gentleman's communication, another cist has been met with, containing three or more skeletons, which having been disturbed when I saw them, the original position of the bodies could not well be ascertained. Near the remains I found sherds of pottery, the jaws and tusks of the boar, with other animal bones; and amongst the earth which was thrown out I picked up a rough flint implement, being a coarse flake which would serve for both knife and scraper, but near the bottom of the grave I detected some iron slugs, which prove, I think, that these interments are not pre-Roman.

The sloping banks of the chalk pit are strewn with fragments of Roman pottery—urns and other vessels; the ware is black, brown, and red, but principally of a dark-bluish grey colour on fracture, and somewhat coarse in texture. One piece, which is glazed, has an ornamentation formed of parallel intersecting lines, and is of the kind of pottery much used for sepulchral purposes. Fragments of glass vessels also occur. Amongst some 30 or 40 pieces of ware which I have found on this spot, are two portions of hypocaust tiles, one a hollow flue tile with vertical lines, and the other flanged, with waved scoring, together with a fluted brick, the plaster on the outer face still adhering to it. Tiles were frequently used in Roman graves, but I am not competent to say if tiles such as represented by these fragments were ever applied to such purposes.

The dead during the Romano-British period were disposed of as in ancient British and Celtic times, both by inhumation and cremation; and so indiscriminately were these usages adopted in England that both are found in the same burial places, and indeed, as in those of the Celtic period, in close proximity to each other. The suggestion therefore naturally occurs, might not this have been a Roman burial place, and are not those bits of pottery fragments of sepulchral urns, and the graves now brought to light, those of the Saxon people who continued to bury their dead on the site of the Roman cemetery until the time of their conversion to Christianity? The whole character of this burial ground, so far as my slight knowledge of such subjects informs me, is quite in accordance with that of Anglo-Saxon cemeteries in the south of England. In East Kent, for instance, where they are found in the greatest abundance, the Anglo-Saxons chose for the burial place of their particu-

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lar tribe the top of a chalk down, where they cut their graves into the chalk exactly as they appear to be cut on the summit of Kintbury Cliff. Long after the establishment of Christianity in this island, the ecclesiastical laws and canons complain of the difficulty of restraining the Christianized Anglo-Saxons from carrying their dead to be buried in the neighbouring unchristian cemeteries of their pagan forefathers, therefore the proximity of the church to this burial ground at Kintbury is to be accounted for by the fact that such a building would instinctively be placed near a spot so hallowed by its associations.

That Kintbury was in Roman occupation admits of little doubt; it was a minor station probably, on the road from Aqua Solis (Bath) and Cunetio (near Marlborough), which proceeded through Hen's Wood to Hug's Ditch, and through Lawn Coppice, Cake Wood, Standgrove, Hungerford, and Kintbury to Spinæ, this last station, I believe, occupying the present site of the town of Newbury. This last place has been most productive, when ground has been disturbed, of Roman antiquities, and is situate at the point of convergence of the great ways from Londinium (London), Calleva (Silchester), Corinium (Cirencester), Sorbiodunum (Old Sarum), Venta Belgarum (Winchester), Aqua Solis (Bath), and other important Roman roads. The camp on Speen Hill, as observed by the Rev. J. Adams at the Arch. Congress in 1859, "has nothing to prove a distinctive Roman origin," and may be regarded as British; but from its important position it was no doubt utilised by the Romans as a military outpost.

The strongest argument against Kintbury being a Saxon burial place is the entire absence of the usual objects accompanying their dead; and unless we conclude the pottery found was used for this purpose, or that these early settlers at Kintbury were compelled by their poverty to let their dead take their chance in the mysterious life into which they believed they were going, there is really nothing in the graves I have examined to conclusively settle the question as to the people to whom this cemetery belonged.

I may add that this burial-ground has been recently inspected by those distinguished antiquaries Canon Greenwell and Colonel Lane Fox; and several of the skulls and bones have been sent to Prof. Rolleston at Oxford, to whom, in the interest of science, Sir Richard Sutton, the owner of the land, has given permission to make these investigations.

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*The ANDAMAN ISLANDS.* By E. H. MAN, Esq. Communicated by Col. A. LANE FOX, F.R.S.

The map, Plate III, and a statement accompanying it, of the distribution of the several tribes inhabiting the Andaman Islands, have been forwarded to Colonel A. Lane Fox, F.R.S., by Colonel Man, and were sent to him by his son, Mr. E. H. Man, who is in charge of one of the native homes in the Andamans, together with a transla-



tion of the Lord's Prayer in the vernacular of the South Andamans. Mr. Man is preparing a vocabulary of the South Andaman language, which promises to be of great anthropological value, and he has promised to draw up a paper on the anthropology of the islands, which will be sent to the Institute. Mr. Man proposes shortly to make a tour of the islands, commencing with the Little Andamans, where there have been three bloody encounters between the Europeans and natives during the past few years. He will endeavour to enter into friendly communication with them, and leave some presents, after which he will start for the South Centinel (*see* map), and ascertain if there are signs of life there. He will then proceed to the North Centinel, which is known to be inhabited, and it is said by the same tribe as the Little Andamans, but as there is 40 miles of sea between the two islands, he thinks they must (judging by past experience) probably speak a different dialect from that of any other tribe in these islands. About ten years ago an attempt was made to land upon this island, but the inhabitants proved hostile. From the North Centinel he proposes to go to a village near Flat Island, on the west side of Middle Andaman Island, where he will land a few natives belonging to the tribe there, who have been partly civilized by Europeans, together with presents of rice, corn, cooking vessels, &c. The huts here are said to be large and substantial, and very different from anything met with elsewhere. He will then proceed to Interview Island, and from thence make the circuit of the North Andamans, visiting some tribes already known there, and return by Port Cornwallis and Sound Island. On his return he hopes to be able to visit a place called Wotâ-Emida, which is somewhere on the south-east corner of Middle Andaman Island, and which, according to the tradition of the natives, is the scene of the Creation. They say that there is a stone there on which Tawmoda (the first man) wrote many commandments, and a history of Creation, which is still to be seen in hieroglyphics, but which none are able to decypher. This rock is said to be on the sea shore, and Mr. Man hopes to be able to photograph it, the people of that part being friendly. Being now able to converse with ease in the South Andaman language, he has obtained from one of the natives an account of a deluge, the details of which will be communicated to the Institute on a future occasion. The photographs of natives of the Andaman and Nicobar Islands which Colonel Man has kindly forwarded to Colonel Lane Fox contain much useful information.

*The NAMES of the SEVERAL TRIBES INHABITING the ANDAMAN ISLANDS.*

North Andaman.	{	1. Âkâ Chârîâr	{	Being their own name for themselves.
		2. Âkâ Jârô ..		They ( <i>i.e.</i> , all three) are called "Yêrê wada" by the tribes near Port Blair.
		3. { Âkâ Ked'e Interview Island tribe		

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| Mid.<br>Andaman. | { | 4. Awko jûwai..                                  | { | Being the names by which they are called by our "junglies" ( <i>i.e.</i> , the South Andaman tribe).   |
|                  |   | 5. Âkâ kôl ..                                    |   |  |
|                  |   | 6. Âkâ Bôjigîâb                                  |   |  |
|                  |   | 7. Bôjingîjida ..                                | { | <i>i.e.</i> , their own name for themselves.   |
|                  |   | (South Andaman, including Rutland Island tribe). |   |  |
|                  |   | 8. Bala wada.                                    |   |  |
|                  |   | (Archipelago tribe.)                             |   |  |
|                  |   | 9. Jàrawada.                                     | { | Including North Centinel (9a), South Centinel (9b), Cinque Islands (9c), and intervening islets; also in Rutland Island and N. and S. of Port Blair. <i>Vide</i> the parts marked. |
|                  |   | (Little Andaman tribe.)                          |   |  |

It is impossible at present to do more than guess at the numerical strength of each tribe. There is every reason to believe that the tribe with which we are best acquainted (South Andaman) numbered considerably more on our first settlement here in 1858 than it does now. It at present probably numbers about 500 or 600, but I have never had means of visiting the encampments at the northern extremity of South Andaman. The Little Andamaners are believed to be the most numerous, but whether they number 200 or 2,000 (more or less) no one can at present say. The belief of those who have visited the numerous islands and made inquiries on the subject is that the whole group contains probably some 5,000 or 6,000 souls. These are probably pretty equally distributed, the most thinly populated in proportion to its size being, I should fancy, this island (South Andaman), where the exposure induced by our clearings, coupled with the increased mortality during the past 19 years, consequent on their change of habits, has possibly reduced the number of the inhabitants by one-third or even more. They are scarcely ever allowed to taste liquor of any kind. Tobacco, of which they are passionately fond, is the only thing in which they are indulged which may be calculated to affect their health. These remarks refer to some 300 of their number living near Port Blair, and in a lesser degree to those living over ten miles from the harbour. The condition of those living more than 30 miles from Port Blair has probably not been appreciably affected, except favourably, by our settlement here, for we have done little more for them than supply them from time to time with presents of iron, bottles, fruit seedlings, matches, beads, looking-glasses, &c., being all articles which they highly prize. It will of course be understood that I have only attempted to show *approxi-*

mately the extent of territory occupied by each tribe. As those inhabiting adjoining districts are more or less on friendly terms with each other, it often happens that they regard certain islands or suitable camping grounds which are situated midway between their respective territories as neutral soil. Hence they state that they are unable to point out definitely in some cases where the border line between certain tribes is supposed to run.

*The Lord's Prayer translated into the Vernacular of the District (South Andaman), by E. H. Man, August, 1876.*

Pûl-ûga lia ârla-lik-yâb.  
God his prayer.

Hê maw-rô kôktâr-len yâtê möllârdûrû îa ab-mâyôla. Ngia  
O Heaven in (is) who our (lit. all of us-of) Father. Thy  
ting-len dai-ij-î-mûgû-en-inga itân. Ngôlla-len möllârdûrû meta  
name to be reverence paid Let You (to) we all our  
mâyôla ngenâke ab-chânag iji-la bêdig. Maw-rô kôktâr-len tegi-  
chief wish for supreme only and. Heaven in is  
lût-malin yâtê ngia kânik, kâ-ûbada ârla-len ârla-len èrem-len  
obeyed which thy will in the same way ever (daily, always) earth on  
itân. Ka-wai möllârdûrû-len ârla-naikan yât mân. Möllâr-  
Let This day all of us to daily (lit. daily-like) food give. We all  
dûrû mol-oichik-len tigrêl yâtê ôloichik-len ârtidûbû, kichi-  
us (to) i.e. agst offend who them to forgive in  
kan-naikan met âryenamî ârtidûbû. Möllârdûrû-len ôtig-ûjûnga  
the same way our offences forgive us all (to) be tempted  
itân ya-ba, dôna möllârdûrû-len abja-bag-tek ôtrâj.  
let not but us all (to) evil from deliver.

Ngôl kichi-kan kânake.  
(Do) thou thus order (i.e. Amen).

*God's Prayer.*

O Father of us all Who is in Heaven.  
Let (may) reverence be paid Thy name.  
We all wish for Thee as our supreme and only Chief.  
Let (may) Thy will which is obeyed in Heaven be ever in the same  
way (obeyed) on earth.  
Give us all this day our daily food.  
Forgive (us) our offences in the same way (as) we forgive them  
who offend against us.  
Let none (lit. not all) of us be tempted, but deliver (protect) us all  
from evil.

(Do) Thou thus order (it).  
Lit. So be Thy will.  
Lit. So be it. Lit. Amen.

a	as in	woman.
ā	"	bird, cur, mirth, mercy.
â	"	father.
ã	"	(Scot) man.
e	"	met.
è	"	(Fr.) père.
ê	"	fête.
i	"	fit.
î	"	police, oblique.
u	"	put.
û	"	brute.
ò	"	pot.
o	"	redolent.
ô	"	mole.
oi	"	boy, foible.
aw	"	aught, law.
au	"	house, cow.
äü	"	(Germ.) haus.

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RECENT ANTHROPOLOGY.      Compiled by W. L. DISTANT.

"Observations on the Nile between Dufi and Magungo." By Col. C. E. Gordon. *Proc. Roy. Geo. Soc.*, vol. 21, p. 48. Col. Gordon writes, "At the distance of 50 miles to the south of Dufi the natives wear each a skin, farther on they clothe themselves with the bark of a tree. I believe that, taking Ratatchambé as a centre, and describing a circle with a radius reaching to Fashoda, that circle would include all the tribes that go entirely naked—a zone outside of that circle would include those half clad—and a zone outside that would contain the tribes who fully clothe themselves."

"Description of a Trip to the Gilgit Valley, a Dependency of the Maharájá of Kashmir." By Capt. H. C. Marsh. *Journ. As. Soc. Beng.*, vol. 45, p. 119. "The name Boté, as the people call themselves, is not to be confounded with the Bhútias or Tibetans. The name is derived from the cap, so that all who wear this head-dress, be they Shí'ah, Sunní, Astori, Gilgití, or Chilási, Shín, or Teshkun; are Boté; although the difference of language is great between all these countries, especially the latter of the two castes, if one might so call them; the Shín is the highest, and forms a comparatively small, but influential body throughout Astor, Gilgit, Guaris, and parts of Chilas. They are careful to intermarry only among themselves, but of late years the Teshkun, or mixed breed, is unavoidably increasing, owing to the pressure put on by the Kashmírís, who all like to intermarry with Shín families if possible." A national dance is described, pp. 124-5; method of making wine, p. 134; manufactures and dress, pp. 127-137: unacquainted with the manufacture of pottery, p. 135.

"An Account of the Island of Bali." By R. Friederich. *Journ. Roy. Asiat. Soc.*, vol. 9, p. 59. This is a continuation of the subject from vol. 8, p. 218; and this instalment is altogether devoted to the "religion of the island of Bali," which is treated very exhaustively under the following arrangement of subjects:—"The creation," "religious ceremonies and offerings," "dress of the Panditas," "dress of the gods," "feasts," "further details of the religious worship," "Rĕsis" (a religious dignity), "Trimūtri" (trinity), "cremations," "castes," "Brahmans," "Xatriyas" (the second caste), "Wesyas" (most important caste).

"On the Galchah Languages" (Wakhí and Sarikolí). By R. B. Shaw. *Journ. As. Soc. Beng.*, vol. 45, p. 139. "The dialects, of which a brief sketch is here given, are spoken in valleys which descend to the east and west respectively from the Pamir Plateau. They are members of a group of kindred dialects which prevail about the head waters of the Oxus, the *Sarikolí* being the only one of them whose home is on the east of Pamir, on one of the affluents of the Yárkand River." A comparison is first made between the Ghalchah and the Dard dialects; this is followed by "the sounds and their representations." The dialects of Sarikol and Wakhán are not found in a written form. They exist only as spoken by the people. For all literary purposes Persian is used by the sufficiently educated. A sketch is given of Wakhí and Sarikolí grammars, a comparative table showing the connection of the Ghalchah language with neighbouring tongues, and a very copious vocabulary of Wakhí and Sarikolí words.

"On Ruins in Makrán." By Major Mockler. *Journ. Roy. As. Soc.*, vol. 9, p. 121. "Makrán is the name of the southernmost portion of the country marked Baluchistán in our maps." These ancient remains the author considers Scythian, and perhaps monuments of the ancestors of the Bráhui tribes who now occupy the eastern border of Baluchistán. Excavations were made which discovered pottery, charcoal, bones, flint knives, &c.

"Indian Burial Mounds and Shell-heaps near Pensacola, Florida." By G. M. Sternberg, Surgeon U.S. Army. *Proc. Am. Ass. (Detroit)*, 1875 (*Nat. Hist.*), p. 282. These burial mounds were two in number. In the first, called "Bear Point Mound," there were great accumulations of "shell-heaps," which were almost entirely composed of oyster shells, and from the fact that these were the shells of large and well-developed oysters only, Mr. Steinberg considers it not improbable that "our aboriginal predecessors" may have cultivated them, or that at least the mode and time of procuring them was regulated by law or custom. As regards the age of these shell-heaps, decayed stumps of live-oak trees, of from two to three feet diameter, are found in many places *in situ* above the shells. From the remains in this burial mound the author considers that cremation was practised before burial. His theory is,



"The mound was built by gradual accretion in the following manner:—That when a death occurred a funeral pyre was erected on the mound upon which the body was placed. That after the body was consumed, any fragments of bones remaining were gathered, placed in a pot and buried; and that the ashes and cinders were covered by a layer of sand brought from the immediate vicinity for that purpose. This view is further supported by the fact that only the shafts of the long bones are found, the expanded extremities, which would be most easily consumed having disappeared; also by the fact that no bones of children were found, their bones being smaller, and containing a less proportion of earthy matter, would be entirely consumed." In the second, "Santa Rosa" Mound, the skeletons were complete.

"On the Peopling of America." By Aug. R. Grote. Bull. Buff. Soc. of Nat. Science, vol. 3, p. 181, 1877. In a previous paper the author had already arrived at the conclusion that we should find colonies of Arctic man upon mountains in the temperate zone of North America had all the conditions for his survival on these elevations been fulfilled in his case as they have been in that of certain plants and animals, and that the Eskimos are the existing representatives of the men of the American glacial epoch. He had also considered that glacial man would be found to have suffered an equal fate with the fauna of the ice-period by a study of migrations. These migrations Mr. Grote proposed to distinguish as "*a primitive migration*, one influenced solely by physical causes affecting man's existence, and which must have been in more extensive operation in early times when he was unprovided with means of his own invention against unfriendly changes in his surroundings. *A culture migration*, one arising out of a certain stage of intellectual advancement, when the movements of man are determined by ultimate and not immediate considerations. Besides these was distinguished an *accidental migration*, which man has submitted to against his will."

Mr. Grote does not believe that man originated in America, but rather that America has always been for man the new world, and is in favour of the view that man entered upon possession of the American continent during the Pliocene and before the ice-period had interfered with a warm climate in the north, the idea being suggested that the ice-period acted as a barrier to inter-communication between Asia and North America. The part hitherto allowed by anthropologists to accidental migration in the peopling of North America is considered as exaggerated. It is proposed by Mr. Grote that this peopling was effected during the Tertiary period; that the ice modified races of Pliocene man existing in the north of Asia and America forced them southward, and then drew them back to the locality where they had undergone their original modification, and that other than Arctic man may have existed across the main belt of this continent during the Pliocene period, and that his sub-

sequent intellectual development, as we find it recorded in the West, Mexico, and South America, &c., is the result of his environment acting upon his isolated condition.

"Observations on the Membral Musculature of *Simia Satyrus* (Orang), and the comparative Myology of Man and the Apes." By W. S. Barnard, of Canton, Ill. Proc. Am. Ass. (Detroit), 1875 (Nat. Hist.), p. 112. This paper commences with the remark that considering the many dissections of *S. satyrus*, made by eminent anatomists, our knowledge of its membral muscles and their homology with those of man and the higher apes remains astonishingly incomplete. Mr. Barnard prefers to compare the limbs in a position extending laterally, at right angles to the vertebral column, and parallel to each other, believing that all appearances of either "syntropic" or "antitropic" symmetry in the limbs are secondarily developed for functional purposes, and that care must be taken not to give those characters too great morphological value. He is also convinced that muscles are much more constant as to the relative position of their origins than as to that of their insertions; that the position of the origin has the greater morphological and homological value, and this leads him, contrary to the systems of anatomists generally, to base the main groups of muscles on the groups of origins as limited by the osseous segments and parts on which they exist. Each of these are to be subdivided into subordinate groups, based on the groups of insertions as limited by the osseous segments or bones, of which he gives a tabular scheme. A fact of the greatest importance set forth in this paper is that most (and probably all) special, apparently distinct (so called "proprius") muscles of the fore and hind limbs belong to, and are morphological parts of, certain of the so-called "communis" muscles, from which they have become differentiated off, or isolated by loss of intermediate parts, so as to appear like distinct muscles in many animals, while in others they are still found in their primitive condition, being mere factors of "communis" forms, as is shown in these studies; e.g., *extensor indicis longus proprius* and *extensor medii digiti* are but parts of an *extensor digitorum communis profundus*; *flexor pollicis longus proprius* is only a part of *flexor digitorum communis profundus*; *extensor hallucis brevis* is a factor of *extensor digitorum brevis*, &c., &c. In the relationship of man to the apes the following conclusion is arrived at by Mr. Barnard, "that physiologically and teleologically man stands farther from the higher apes than those do from the lower ones of their kind, whereas morphologically the higher apes rank nearer to man than to the lower apes." The muscles of *Simia satyrus* are then exhaustively considered *seriatim* and comparatively.

"On the Mechanism of the Intervertebral Substance, and on some Effects of the Erect Position of Man." By A. H. Garrod, M.A. Proc. Zool. Soc. Lon., 1877, p. 48. An explanation is given of the mechanical advantages in the structure of the disks of fibro-elastic

tissue which intervene between the bodies of the vertebræ, and attention is then drawn to one or two points which are associated with the erectness of the carriage of man, in contradistinction to the horizontal and oblique attitudes assumed by lower animals.

Mr. Garrod considers "the simple curve, concave ventrally, of the vertebral column of the higher apes was most certainly shared by the human progenitor. In the young child it is found to exist. In its attempts to assume the upright carriage this progenitor must equally certainly, have thrown the centre of gravity of its body directly above the hips, to do which it was necessary to bend the spine backwards. On account, however, of the thoracic region being rendered rigid by the attachment of its cage of ribs, and the sacrum being unmodifiable from its ankylosis, this flexion of the spine could only occur in the neck and loins; consequently the spinal flexures in man may be explained upon the assumption that the dorsal and sacral ventral concavities are the similar curves of the ancestral type, retained on account of the mechanical obstructions to their removal, whilst the ventral convexities of the yielding cervical and lumbar regions are the means by which the centre of gravity in the erect position is carried to a point directly above the hip-joints.

Mr. Garrod further remarks that this assumption of a vertical attitude by a creature originally differentiated for a horizontal position of its body, has produced but marvellously slight inconvenience. If it had resulted in many, man could hardly have survived. One or two are, however, considered by the author as certainly traceable to this cause, including the painful tendency to prolapse, antifixion, and retroflexion of the uterus in women, as well as crural hernia in both sexes, and inguinal hernia in the male.

Other comparisons are made in this valuable anthropological communication.

The Straits Times and Overland Journal, dated Singapore, January 11, 1877, contains a notice and extracts from a pamphlet published by Messrs. Thieme and Company, Sourabaya, written by Mr. P. C. L. Hartog, and addressed to the Sourabaya Trade Club, containing short extracts from the report of the voyages of the steamer "Egeron" through the Malayan Archipelago to New Guinea and the "Papoea" Isles. On the first voyage of the "Egeron," Captain Hartog made an offer of a free passage to any official who might be deputed by the Governor-General of India to accompany him, and as the offer was accepted, an official report will doubtless be made upon the result. Amongst other interesting items may be mentioned some notes on the little known island of Timor-laut, situated between 7° and 8° S. lat. and 132° and 133° E. long. Agriculture prevails to some extent, maize and tobacco being cultivated. The natives are numerous, are a very lively and active people, and though they have been represented as crafty and treacherous, Mr. Hartog did not find them so, and also adduces, as an example of their character, that an English vessel was some time ago wrecked off the isle, and the survivors of the wreck were hospitably entertained by the

natives for a period of eight months. There unfortunately seems, however, to be no attempt to describe the physical peculiarities of these people.

These voyages being made purely for trading speculation, and the results apparently being very satisfactory, we may expect soon to hear very much more of the islands and their inhabitants, but at the same time we must remember the inevitable alteration in primitive manners and customs which soon ensues after the advent of the trading company. Mr. Hartog also visited the north-west and west coast of New Guinea, and remarks on the extreme fertility of the soil and the great quantity of nutmeg trees. Along the coast, he says, "are the camps of the natives, called Papuans, who have direct intercourse with the merchants of Macassar. This people get the nutmegs from the Alifurus, the owners of the nutmeg trees."

"Ethnical Periods." By Lewis H. Morgan, of Rochester, N. Y., Proc. Am. Ass. (Detroit), 1875 (Nat. Hist.), p. 266. Mr. Morgan proposes the following classification of ethnical periods:—

<i>Periods.</i>	<i>Conditions.</i>
I. Period of savagery.	I. Status of savagery.
II. Opening period of barbarism.	II. Lower status of barbarism.
III. Middle period of barbarism.	III. Middle status of barbarism.
IV. Closing period of barbarism.	IV. Upper status of barbarism.
V. Period of civilisation.	V. Status of civilisation.
I. Status of savagery.	{ From the infancy of the human race to the invention of pottery.
II. Lower status of barbarism.	{ From the use of pottery to the domestication of animals in the Eastern Hemisphere; and in the western to the cultivation of maize and plants by irrigation, with the use of adobes and dressed stone in houses.
III. Middle status of barbarism.	{ From the domestication of animals, &c., to the manufacture and use of iron.
IV. Upper status of barbarism.	{ From the use of iron to the invention of a Phonetic alphabet, with the use of writing in literary composition.
V. Status of civilisation.	{ From the use of alphabetic writing in the production of literary records to the present time. It divides into ancient and modern.

"Arts of Subsistence." By Lewis H. Morgan, of Rochester, N. Y., Proc. Am. Ass. (Detroit), 1875 (Nat. Hist.), p. 274. The author commences by remarking, "The same great fact that mankind commenced their career at the bottom of the scale and worked their way up to civilisation through growth of knowledge, is revealed in an expressive manner by their successive arts of subsistence. Upon their success in multiplying the sources and increasing the amount of food, the whole question of human supremacy on the earth depended." Mr. Morgan considers it probable that the great epochs of human progress have been identified, more or less directly, with the enlargement of the sources of subsistence. Five of the sources are enumerated:—

I. Natural subsistence upon fruits and roots in a restricted habitat.

II. Fish subsistence.

III. Farinaceous subsistence through cultivation.

IV. Meat and milk subsistence.

V. Unlimited subsistence through field agriculture.

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